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## ORIGINAL LECTURES.

### CLINICAL LECTURE ON PARENCHYMATOUS INFLAMMATION OF THE LIVER.

*Delivered at the Philadelphia Hospital*

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**G**ENTLEMEN,—In the diagnosis of those cases which come before your notice there are two methods to be employed. One is the method of diagnosis by recognition, in which the disease is diagnosed by the salient symptoms which are unmistakable. Examples of such diagnosis would be measles or scarlet fever by means of the eruption, or the diagnosis of tonsillitis by the character of the sore throat.

There is another way of making the diagnosis, and that is by exclusion. Whenever a diagnosis is made by recognition, it is always well to prove its correctness by the diagnosis by exclusion. The former method is, however, much more convenient, as it is the quickest and the one instinctively employed. You look at a case, and you can hardly help forming an idea as to the nature of the malady. After forming such an idea, it should, if possible, be verified by the latter method. I propose to show you how to do this in the case now before us.

This patient, a man, *æt.* 45, blacksmith by trade, of sober and industrious habits, was admitted to the hospital seven weeks ago, with enlargement of the abdomen and some *œdema* of the limbs. There was also diarrhoea and indigestion. The indigestion was accompanied with a tongue red at the point, while the back was dry and cracked in different places. There was a good deal of nausea and a considerable accumulation of air in the stomach and intestines, as was shown by the tympanic percussion-note. There has also been slight jaundice, the traces of which can still be seen.

The course of the case since admission has been interesting, and I shall give you its synopsis before telling you the diagno-

sis we formed at that time. He has improved so far as the symptoms directly referable to the digestive tract were concerned. They indicated indigestion due to intestinal catarrh. But the general condition has not improved. The abdominal distention has materially lessened, but he has lost flesh.

What symptoms have we to start upon? We had enlargement of the abdomen. This was found to be due chiefly to a collection of gas, but was in part due to liquid accumulation, which was shown by the dull percussion-note heard over the lower zone of the abdomen. This was chiefly recognized when the body was inclined forward. Fluctuation was also detected.

Another point in the diagnosis was that percussion over the liver gave an enlarged area of liver-dulness. At the time that this observation was first made the increased area of hepatic dulness was only determined by percussing with the patient on the side, for when on the back the abdominal effusion interfered with percussion. To-day we find the area of liver-dulness in the nipple-line to be six inches. We have then ascites, enlarged liver, and distinct signs of intestinal catarrh, with diarrhoea and slight jaundice and catarrh of the stomach, as evidenced by the condition of the tongue. These are salient symptoms which accompany the initial stages of a condition known as cirrhosis of the liver. With these points, which made the diagnosis by recognition possible, there were others which rendered it necessary to make the diagnosis by exclusion. There were several reasons why this should be done. I shall refer to the more important of these later, but I shall take up the least important now. There was dropsy of the legs, which is not a usual symptom of enlargement of the liver, and it therefore led us at once to ascertain if there were any condition which would explain this as well as the abdominal effusion. The common cause of dropsy of the legs is a mechanical congestion resulting from cardiac trouble. Examination of the heart showed that its sounds and impulse were satisfactory. The next important factors in the production of dropsy are the kidneys. In the examination of the urine in this case there were certain conditions which might have led to mistake. The

urine contained a few hyaline casts. At first sight it might be supposed that there was some form of Bright's disease. Against this idea there were these important points. In the first place, the secretion of urine, which had been small in amount, increased in quantity until it became normal or a little in excess of normal. In the second place, the specific gravity was high. In Bright's disease, where there is deficient elimination, the specific gravity becomes an important means of determining the renal adequacy, because it is usually decreased in this affection. In this instance the specific gravity was increased, and the urine was dark in color and loaded with urates and other materials: an appearance suggestive of renal congestion rather than Bright's disease. The urine presented these characteristics not for a day or week only, but for some time, and after finding that these general characters continued, although the actual quantity was increased, we concluded that the presence of casts must be explained on some other theory than that of disease of the kidney. The tubules of the kidney, when irritated, can give rise to the exudation of an albuminous material which may appear as moulds of these tubes. It is pretty well demonstrated that casts can occur whenever the kidney-tissue is congested or irritated in any way, and naturally, if we assume disease of the liver, there was a cause for repletion in the renal venous circulation, for in such a condition the kidneys would be called upon to throw off an increased amount of nitrogenous material. We therefore concluded that, practically speaking, the kidneys were nearly normal, although we recognized a certain amount of congestion.

How, then, do we explain the dropsy in the limbs? I think that this was due to the pressure upon the blood-vessels of the accumulation of liquid in the abdominal cavity. This would be sufficient to cause swelling of the lower extremities. Since the patient was put to bed the limbs have been free from swelling.

This is what is meant by diagnosis by exclusion. We have passed in review the other principal causes of dropsy. We have then examined the heart and kidneys, and find in them no cause for the dropsy, while we have a satisfactory explanation in the disease of the liver and the abdominal effusion. It is therefore unnecessary

to review the exceptional conditions leading to dropsy,—viz., a defective crisis of the blood, permitting of leakage, vasomotor paresis, etc.

We now come to the other point in the differential diagnosis. Many diseases have a definite cause, and this is particularly true of hepatic disease. If the usual cause of the disease is found to be absent, there is strong reason for supposing that a mistake in diagnosis has been made. This has been the point which has troubled us in reference to this case. Although I had come to the conclusion that an initial stage of cirrhosis was present, yet I could not understand its etiology. Andral, a famous French pathologist, insisted that cirrhosis of the liver was always connected with alcoholism; and this disease has been called in England "gin-drinker's liver," and all sorts of instances have been cited to show the connection between cirrhosis and alcoholism. In cirrhosis of the liver there is an increase in the connective tissue of the organ, resulting from the irritation of the hepatic tissue from the liquors transmitted from the digestive tract by means of the portal vein. Our patient, however, has never been a drinking man. He is by occupation a blacksmith, and insists upon his temperate habits. It is perfectly true that there are one or two other causes of cirrhosis. It occurs in individuals addicted to the use of highly-seasoned food; but this patient has never been a high liver, nor prior to this attack has he suffered much from indigestion. Cirrhosis has been found in the lower animals, showing that it may occur independently of the causes which I have mentioned. Still, the case was obscure, on the idea that cirrhosis was primarily connected with hypertrophy of the connective tissue throughout the liver. There is one other cause of hypertrophy of this connective tissue, and that is repeated gastric catarrhs with jaundice; but in such cases there is marked jaundice, which has been absent in this case. Therefore we could find no explanation for the disease if it started primarily in the connective tissue, and must style it idiopathic.

Some researches into the etiology of the pathological changes in the development of cirrhosis have been made in which a comparison has been drawn between parenchymatous disease of the kidney and the liver. Practically speaking, we have

two diseases of the kidney,—viz., hypertrophy of the connective tissue between the tubules, which results in granular contracted kidney, and parenchymatous nephritis, in which the disease starts in the cells of the tubules, causing swelling of the whole organ and leading to what is termed large white kidney. In many cases, however, primary changes within tubules are associated with interstitial proliferation, which may finally prove the predominant changes. It has been thought that cirrhosis of the liver may begin in its parenchyma, that is, in the hepatic cells, just as it may begin in the cells of the kidney. In other words, it has been supposed that the disease may begin in the liver-cells, and the irritation thus produced lead secondarily to hypertrophy of the connective tissue.

You will ask, What has this to do with the case before us? I think a great deal. Parenchymatous nephritis is possible from some poisonous material in the blood acting upon the cells of the tubule of the kidney. Parenchymatous disease of the liver may be due to some poisonous product of partial digestion, that is, some imperfectly reduced albuminoid, which, passing in greater abundance through the liver than can be dealt with by this gland, can make an impression upon the cells, causing cloudy swelling and enlargement, and the connective tissue become secondarily involved. This man, having been a blacksmith, a poor man, and not able to select his food with care, has made himself liable to have irritation of these cells from subacute indigestion, although he has not made himself liable to cirrhosis from the use of alcohol.

Another point. When cirrhosis is due to alcohol, it begins gradually and extends over a period of two or three years. This man, as far as he knows, has been sick only a few weeks. We can see how this disease may develop rapidly, just as we know tubular nephritis may originate in a similar period of time. I think we get rid of the etiological objection to the diagnosis in this case if we can consider the disease as beginning in the liver-cells. I refer to this matter rather carefully, for I do not think you always have the possibility of the occurrence of parenchymatous cirrhosis sufficiently dwelt upon in your lectures.

What is the process of development in

these cases of parenchymatous cirrhosis? The irritation of the hepatic cells causes cloudy swelling and enlargement. This is followed by irritation of the connective tissue, and as the connective-tissue increase occurs pressure is exercised upon the hepatic cells, the size of the liver is reduced, although at first the liver is enlarged.

What has been the result of treatment in this case? When, four weeks ago, we tapped the abdomen and drew off the liquid, he improved. If in this case there had been extensive increase of connective tissue, I do not think that the man would have been benefited by tapping, for then there would have been a permanent obstruction of the radicles of the portal vein. There were no enlarged veins over the abdomen, as is usually seen in cirrhosis due to obstruction of the portal circulation. When cirrhosis has lasted for any length of time, these venous dilatations are always present, and are due to the collateral circulation through the hemorrhoidal and hypogastric veins, the veins of the stomach and the œsophageal; also the vein that Sappey has described, arising from the left branch of the portal vein and passing up the falciform ligament close to the ligamentum teres to join the epigastric and internal mammary veins. If the obstruction has been due to parenchymatous swelling and secondary interstitial proliferation, we could have ascites; and yet, if the obstruction has not been long enough continued to cause development of the collateral circulation, removal of the accumulation will facilitate the circulation through the liver and may afford a chance of improvement.

There is another clinical point, and that is in regard to the slight jaundice which was present at the first period of the case. Jaundice is nearly always due to obstruction,—that is, to obstruction to the main or other bile-ducts, as from catarrhal inflammation. The bile which is then formed in the liver is reabsorbed and taken into the circulation, causing staining of the tissues. In this patient we have had some intestinal catarrh at the commencement of the case, and I think the jaundice was due to obstruction of the ducts. Since then he has had no jaundice simply because the liver has not formed bile in large amount. Why do I say that the liver is not forming bile? Because throughout the course of the case tympa-



nites has been a prominent symptom. This might be referred to venous repletion of the intestinal radicles of the portal system, with decomposition of food secondary to imperfect elaboration of intestinal juices. Flatulence also may result from imperfect absorption of air by the mucous membranes, by swallowing of air and subsequent passage into the intestines. But there has been more flatulence than is usual where the biliary secretion is present in reasonable amount, and the other causes we have excluded by treatment. When I say that jaundice is commonly due to obstruction, I mean to say that it is never due to suppression. It used to be supposed that the biliary matters existed preformed in the blood. I have not time to go thoroughly into this matter, but there are two points which show the impossibility of this view. In the first place, there is not enough coloring-matter in the blood to color all the bile which is secreted by the liver. In the second place, the liver can be entirely removed in animals without the supervention of jaundice. These points show that jaundice from suppression is a fallacy. Those cases in which there is jaundice with no obstruction in the ducts are now explained by the physiological fact that when the bile is poured into the intestine in normal amount, such portion as is not used is absorbed and excreted by the lungs and other emunctories. The failure of these emunctories to excrete the bile is therefore the cause of jaundice in those cases where there is no obstruction.

What shall be the treatment in this particular case? The treatment of cirrhosis is very interesting. In the first place, it is chiefly important to attend to the diet, which should contain as few starches and fats as possible, and should consist of milk and albumen in such form as is readily digested with the least amount of digestive activity. Valentine's beef-juice and beef-extracts are suitable. The next factor is to keep the bowels open, and I should always give some form of tonic laxative, such as the following:

R Ferri sulphatis, gr. ij;  
Magnesii sulphatis, gr. xlv;  
Infus. quassiae, ℥ss. M.

Sig.—This is one dose, and is to be taken in half a glassful of cold or warm water in the morning before breakfast.

If the cirrhosis is of the ordinary variety, I should do nothing further, and unless

tapping were called for by the dyspnoea, I should postpone it. In such cases the effusion immediately recurs, and the tapping removes a large amount of albuminous liquid. On the other hand, if I thought that the cirrhosis was causatively more parenchymatous than interstitial, I should tap, because by relieving portal congestion we should facilitate the circulation in the liver and the repair of the cells.

I propose this morning to tap this man. It is better to incise the skin, as it facilitates the introduction and the withdrawal of the canula. The fluid which escapes is clear and highly albuminous. I think this will not reaccumulate for some time. We shall pursue the treatment with diet and the tonic laxative to which I have referred, and shall again show you the case in a fortnight.

*April 1.*—Gentlemen, you will recall this case, which I presented to you two weeks ago. At that time I made the diagnosis of cirrhosis with enlargement of the liver, caused by a process beginning in the liver-cells, this being followed by irritation of the connective tissue, and that the primary cause of irritation of the hepatic cells was poor digestion and catarrh of the stomach. This prevented the proper assimilation of food, and flooded the liver with partially-reduced albuminoids. You also remember that at the close of the hour I performed paracentesis, and drew off a considerable quantity of fluid in order to relieve the portal circulation. I tapped because I thought the disease was connected rather with the hepatic cells than with the connective tissue of the liver. In the latter case there is usually such a degree of permanent obstruction of the portal circulation that I think it undesirable to perform paracentesis unless there is severe dyspnoea due to the collection of fluid, for every tapping tends to weaken the patient by drawing off a considerable quantity of albuminous liquid. I thought that in this case, by removing the pressure on the portal circulation we would facilitate the circulation through the liver and permit the cells to regain their normal condition.

So far as the portal obstruction is concerned, I think that we have had reasonable success. The fluid accumulation has not returned, but since he was before you there has been one complication which I think bears out the diagnosis. One week



ago the man had a severe clonic convulsion. Last night he had another. These were general in character, and accompanied by all the phenomena of uræmic convulsions. It is proper to state that the patient had never suffered from any form of simple epilepsy, had never been subjected to brain-disease, and, as far as we can ascertain, never had syphilis.

Epileptiform convulsions may occur from a great variety of causes, but he has had none of the ordinary causes. We therefore turn to the condition of the circulating-fluid to find an explanation for these seizures. In order that you may thoroughly appreciate what I have to say on this point, I want to remind you of two interesting facts. One is that the ordinary peptones which are formed in the stomach in the digestion of the albuminoids are capable of causing convulsions if removed from the stomach and injected into the circulation. Another fact is that the virus of serpents, if swallowed, will pass through the circulation without producing the symptoms of poisoning which it would if it were injected into the blood. The poison is in some way modified by passing through the hepatic circulation, so that it is no longer virulent. I think that these two physiological facts have an important bearing on the diagnosis in this case. Let me refer to one or two more physiological data. When the albuminoids are taken into the stomach they are there changed into peptones, and these are broken up into a number of other combinations. The object of this change is to fit them for dialyzation through the mucous membrane of the intestine and to enter the portal circulation. When these peptones have entered the portal vein, they go to form the globulin of the blood, and in part the glycogen, which is stored up in the liver. We know that if the albuminoids were passed directly from the stomach and intestines into the portal circulation, without being acted on by the gastric and intestinal secretions, they would not enter the circulation in an assimilative form. This may be illustrated by a fact which you well know,—viz., that a lump of rock-salt will not dissolve so quickly in water as the same weight of table-salt, which on account of its fineness will diffuse more quickly through the water. Again, it has been shown by laboratory experiments, particularly by those of Brunton, that if you

take a membrane prepared with tannate of gelatin it will allow dialyzation through it of compounds having a certain molecular weight only. It is found that a solution of nitrate of barium having a molecular weight of 130.6 will pass through this membrane, while a solution of ferrocyanide of potassium having a molecular weight of 211.4 would not pass through.

Applying these facts to the case in hand, we see how important it is that proper digestion should go on in the stomach and intestines, so that the food absorbed may be received into the blood in a condition in which it may be appropriated by the tissues, and we see that when the peptones and other substances produced by the digestion of starches enter the circulation imperfectly reduced, they are capable of causing serious symptoms. I wish to call particular attention to this point. The name of the portal vein is, as you well know, the vena porta. It was so called by the ancients because they recognized how many disturbances were due to what they called biliousness, and attributed to inefficient action of the liver. In reality, they were more nearly right than they thought. I attribute this man's whole trouble not to ordinary cirrhosis, for he had not been subjected to the causes of interstitial cirrhosis. He had, however, been subjected to a poor dietary, and had suffered with indigestion, and these were connected, I believe, with degeneration of the hepatic cells. To corroborate this view, we have the convulsions. We know that uræmic convulsions are not due simply to the urea, but to the retention of partly-reduced albuminoids in the system. Cholæsthetic (so-called) convulsions are dependent on a deficient action of the liver, and are due to the fact that the substances which should be reduced by the liver into globulin and glycogen are not so reduced, and pass into the blood probably as some form of peptone and produce convulsions. For, as I stated at the last lecture, the urine of this man has always been loaded with urates and of high specific gravity.

You will, therefore, do well to remember that convulsions are possible when the kidneys are normal, and may complicate hepatic disease, and in such cases are due to the entrance into the blood of partially-reduced albuminoids, which, being incapable of exchanging their nutritive materials with the waste products of the system,

bring on convulsions through the circulation.

If we thoroughly appreciate these facts, we can see what would be the proper line of treatment and what would be the outlook. I think that the prognosis is not seriously complicated by the occurrence of these convulsions. Regarding them as symptoms of deficient hepatic function not necessarily speedily fatal, we treated him by purging to get rid of any partially-digested matters in the intestinal canal and to quicken the circulation through the liver. We also recognized that a quantity of this material was stored up in the blood, and we therefore caused sweating with jaborandi. Jaborandi does more than simply to produce sweating. It favors the elimination of the solids of the blood, which pass off with the sweat. In many cases it is proper to give jaborandi even when the patient is bathed with perspiration. This might be thought to be a contra-indication, but the skin may be moist from weakness, poor circulation, and other causes. Jaborandi causes sweating, which carries off effete nitrogenous materials.

I look forward, under the above treatment and a proper diet, to the recovery of this patient from the immediate symptoms and to the palliation of the progress of a serious disease. In a general hospital it is difficult to control the diet as we wish, and I find that yesterday the patient did not confine himself to the milk-diet, but also took meat, which may have had some influence in determining the convulsion which he had last night.

### ORIGINAL COMMUNICATIONS.

#### RECENT LEGISLATION WITH REGARD TO ADULTERATION OF FOOD AND DRUGS.

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**L**AWS relating to adulteration of food and drugs constitute a very interesting chapter in modern legislation. So recent, indeed, are these laws that few dating back more than ten years are of value either in detecting or in punishing adulteration. In 1875 the first comprehensive and practical law in England was enacted, although in 1860 a statute was passed which was of use as an experiment. It had, however, so many faults that it

accomplished little in stopping the evil it was aimed against. But it must not be imagined that adulteration is a device of so recent a date as 1860.

So far back as the time of Henry III., in the thirteenth century, there was a law forbidding the harmful mixture of foreign substances with the wares of bakers, butchers, vintners, grocers, and others, and in the time of the Roman Empire Pliny tells us that opium was adulterated with the juice of other plants, and inspectors were appointed in Athens to examine the wine-supply. In the time of Henry III. a statute called "The Pillory and Tumbrel" (ducking-stool), from the kind of punishment adopted, was passed, and was on the English statute-book for several centuries. The examination of bread in order to secure a pure article was an important feature of this law. Immediately after the feast of St. Michael in each year was held what was called the assize of bread, and four discreet men made an examination of the samples offered for sale, prescribed rules for properly mixing the loaves, and established a price. These rules were then in force for the current year.

At the close of the thirteenth century we find the following statement of the way in which punishment was inflicted in London: "If any default shall be found in the bread of a baker in the city, the first time let him be drawn upon a hurdle from the Guildhall to his own house, through the great street where there be most people assembled, and through the great streets which are most dirty, with the faulty loaf hanging from his neck; if a second time he shall be found committing the same offence, let him be drawn from the Guildhall through the great street of Cheepe in the manner aforesaid to the pillory, and let him be put upon the pillory and remain there at least one hour in the day; and the third time that such default shall be found, he shall be drawn, and the oven shall be pulled down, and the baker made to forswear the trade in the city forever." In 1316 there was an ordinance that "no one should mix any manner of wares, that is to say, shall put old things with new or new things with old, by reason whereof the good thing may be impaired by the old; nor yet things of one price or of one sort with other things of another sort."

The guilds of the Middle Ages had great powers over the various trades and occupations, and their regulations had much of the character of statutes. These regulations, together with the formal statutes, seemed to be sufficient in the great majority of cases to check adulteration. And it was not until quite recent times that adulteration played much of a part in the manufacture and sale of either food or drugs. In this century population had become so dense that the secret arts of the adulterator opened up new channels for commercial profit, and the business principles of the great majority of tradesmen were not proof against the temptation. Carlyle with his trenchant pen thus compares the old with the new:

"What a contrast between now and say only a hundred years ago! At that date, or still more conspicuously for ages before that, all England awoke to its work with an invocation to an Eternal Maker to bless them in their day's labor and help them to do it well. Now, all England—shopkeepers, workmen, and all manner of competing laborers—awaken as with an unspoken but heartfelt prayer to Beelzebub, 'Oh, help us, thou great lord of shoddy, adulteration, and malfeasance, to do our work with the maximum of slowness, swiftness, profit, and mendacity, for the devil's sake,' and an amen."

Between 1851 and 1854 there was quite an agitation in England on the general subject of adulteration, the lead in the discussion being taken by the great medical paper, the *Lancet*. This agitation brought on an official investigation by a Parliamentary committee, and the result of the investigation was the enactment of the law of 1860. This law was amended several times, but did not seem to meet the requirements of the case, and in 1874 a new Parliamentary committee conducted the most scientific examination of the subject made up to that date, and secured an amount of data concerning the extent and character of adulteration which has been of great value. The result of this investigation, so far at least as concerns food, was to the effect that a great deal of adulteration was practised, but that the character of it was not well understood. The committee reported that the public was being cheated rather than poisoned by the wares offered for sale. A bill was at once introduced embodying the sugges-

tions made by this committee, and it became a law in the following year. This law, with some amendments adopted in 1878 and 1879, is now the law for Great Britain.

The main features of the statute are as follows: All persons are forbidden to mix, color, stain, or powder any article of food with anything injurious to health, or by use of similar methods to affect drugs so as to weaken their quality or potency, under a penalty of fifty pounds for the first offence, and for succeeding offences of imprisonment not to exceed six months. Lack of knowledge of the adulteration, if such knowledge could not be acquired with reasonable diligence, relieves from responsibility. Analysts are appointed to make examination of suspected articles of food, and a refusal to sell the articles for the purpose of analysis is punished by a fine. If a vendor is convicted of selling adulterated food or drugs and he has a warranty of good quality from the manufacturer, he can recover his fine and expenses from such manufacturer.

A false warranty makes the giver liable to a penalty of twenty pounds, and a person applying a warranty to an article other than the one intended is also liable to a fine of twenty pounds.

This law has been of great value in securing knowledge of adulterations and in informing the public of the character of articles sold in the public markets, but statistics of prosecutions and convictions under it are not attainable. It seems defective in not providing any sure standard of quality either for food or drugs, and also in requiring proof of guilty knowledge on the part of the vendor.

In 1881 and 1882 there were 32,708 different samples examined, and of these 5418 were found to be adulterated.

On the Continent, France, Belgium, and Germany have stringent laws against adulteration, most of them of very recent date. In Germany, in 1878, there were 231,478 different samples of food, liquors, drugs, etc., examined, and there were 3352 convictions for violations of the law. The German law does not require proof that the seller knew of the adulteration. In France well-equipped laboratories are provided in the principal cities for the proper examination of suspected articles, and in addition complete photographic outfits are provided, so that ocular demonstration can be made before juries of certain



forms of adulteration. In 1881 there were 6517 samples examined, and the percentage of adulteration was 50.40.

In the United States there is no Federal law on the subject of adulteration, as this is beyond the jurisdiction of Congress except as regards the importation of adulterated articles and their transportation from State to State. In regard to the importation of adulterations there is comparatively little accomplished, as inspectors of sufficient technical knowledge are rarely provided, and rules have not been issued by the Treasury officials directing examinations for the purpose of detecting adulterations. There has been, however, a law on the statute-book since 1848 forbidding the importation of adulterated drugs, and so serious was the evil at that time that in the nine years between 1848 and 1857 there were over 900,000 pounds of spurious and inferior drugs seized and destroyed. At this time it is said that there were establishments in Europe started and carried on for the special purpose of supplying the American market with adulterated drugs.

Up to the time of the war of the Rebellion, adulteration, either in food-products or in drugs, was not a very noteworthy characteristic of commercial dealings, and the frauds practised were in most cases not adulterations at all, but consisted in palming off inferior goods and in giving short weight or measure.

The war brought many evils in its train which peace did not remove, and among them adulteration of food-products is one of the greatest plagues. The demand for foreign products was rather stimulated than diminished by the war, and with the extraordinary demand for army wants the supply did not equal the demand, and consequently an opportunity was opened for fraudulent devices of every kind, and a multitude of persons hastened to take advantage of the opportunity. The habits of extravagance and lavish living formed during war times have remained as one of the legacies of the great conflict, and the frauds then hardly noticed because of greater interests at stake have continued to flourish by reason of lack of popular knowledge of the extent of the practice of adulteration. Many forms of sophistication or weakening require technical knowledge for their detection, and it has not been until quite recently that the public

became sufficiently interested to demand laws providing for the careful and systematic examination of food-products.

In some of the States this demand came earlier than in others, and in some it has not yet appeared at all, for there are perhaps half a dozen States which, so far as the statute-books show, do not recognize the fact of adulteration. A large number of the States have organizations known as Boards of Health, and these Boards, where sufficient means have been supplied, have done good service in the investigation of the extent and character of adulterations. In comparatively few instances have they gone much beyond this. The enforcement of the laws and the punishment of offenders is a much more difficult matter than conducting analyses in the laboratory, and up to the present time the legal side of the matter has not had a very brilliant demonstration. The chemical investigation comes first in order, however, for there must be a vast amount of facts secured by patient investigation before adulteration is sufficiently understood to enable proper laws to be framed, and this preliminary condition of affairs had not passed away so lately as 1880, when the National Board of Trade took the matter in hand. Prior to that time some of the States, as Massachusetts and Michigan, had given considerable attention to investigation of frauds in the manufacture of articles of food and had cleared the way for successful legislation.

Shortly after the passage of the English Food-Adulteration Act of 1875 there were published in this country a large number of sensational and extravagant articles relating to deceptions in a variety of commodities of very general use. These articles were very widely copied by the press, and there was created a demand for legislation. Many of the published statements were based upon false or insufficient data, but still the fact remained that adulteration was very extensively and very unblushingly practised.

In 1879 the proprietors of the *Sanitary Engineer*, a paper much interested in public matters of this kind, induced the National Board of Trade to offer prizes for the best essays on the subject of Food and Drug Adulteration, the essays to be accompanied by drafts of proposed legislation. The subject was a comparatively new one in this country, and a year was

given to allow for proper investigation. A committee of award was appointed, consisting of Dr. John S. Billings, U.S.A., Prof. Charles F. Chandler, New York, Ex-Chancellor Williamson, of New Jersey, ———, and A. H. Hardy, Esq., Boston. This committee awarded the first prize of one thousand dollars to Mr. George W. Wigner, of London, one of the public analysts of England and an acknowledged authority on the whole subject.

The report made by the committee contained the interesting comment deduced from the investigations made, that up to that time adulteration was not a serious menace to public health, and that commercial more than sanitary reasons prompted the demand for legislation.

The action of the Board of Trade and the active interest taken by the *Sanitary Engineer* secured favorable consideration for the proposed legislation. Two bills were drawn up, one for national adoption and the other for State use. These bills were very carefully prepared and are models of what a good law ought to be. The Federal bill was presented to Congress in 1881, but the short session of Congress prevented its adoption at that time, although favorably reported, and since that year the bill has not been very earnestly pushed.

In the case of the State bill matters went somewhat differently, for the draft became a law with comparatively few changes in the States of New York, Massachusetts, and New Jersey during the sessions of the Legislatures meeting that year. This law should prove a model in those States where adequate legislation does not yet exist, and its main features will be of interest. The Massachusetts statute in one or two slight particulars is better than the New York one, and the quotations will be from it.

"Section 1. No person shall, within this commonwealth, manufacture for sale, offer for sale, or sell any drug or article of food which is adulterated within the meaning of this act.

"Section 2. The term 'drug' as used in this act shall include all medicines for internal or external use, antiseptics, disinfectants, and cosmetics.

"The term 'food' as used herein shall include all articles used for food or drink by man.

"Section 3. An article shall be deemed to be adulterated within the meaning of this act,—

"(a) In the case of drugs: (1) If, when sold under or by a name recognized in the United States Pharmacopœia, it differs from the standard of strength, quality, or purity laid down therein; (2) if, when sold under or by a name not recognized in the United States Pharmacopœia, but which is found in some other pharmacopœia or other standard work on materia medica, it differs materially from the standard of strength, quality, or purity laid down in such work; (3) if its strength or purity falls below the professed standard under which it is sold.

"(b) In the case of food: (1) If any substance or substances have been mixed with it so as to reduce or lower or injuriously affect its quality or strength; (2) if any inferior or cheaper substance or substances have been substituted wholly or in part for it; (3) if any valuable constituent has been wholly or in part abstracted from it; (4) if it is an imitation of or is sold under the name of another article; (5) if it consists wholly or in part of diseased, decomposed, putrid, or rotten animal or vegetable substance, whether manufactured or not; or, in the case of milk, if it is the product of a diseased animal; (6) if it is colored, coated, polished, or powdered, whereby damage is concealed or it is made to appear better or of greater value than it really is; (7) if it contains any added poisonous ingredient or any ingredient which may render it injurious to the health of a person consuming it."

The following sections give the State Board of Health, Lunacy, and Charity power to declare certain articles to be exempt from the provisions of the law; to fix the limits of variability allowable in foods or drugs not mentioned in the national pharmacopœia; to appoint the necessary analysts and chemists; to make such rules and regulations as are necessary for the proper carrying out of the law, and requires every dealer to furnish articles for analysis when demanded. The penalty for violation of the law is fifty dollars for a first offence, and one hundred dollars for subsequent offences.

The special features of this law and the similar laws of New York and New Jersey which make them superior to all

others in force are the clear statements defining what are articles of food and drugs, and in what adulteration consists.

With such laws on the statute-book, it is pertinent to inquire whether their technical merits have proved equal to the bitter struggle in the courts which their vigorous enforcement was sure to produce. In Massachusetts, with earnest and intelligent officials to conduct prosecutions, the law has proved not only adequate to determine the guilt, but also sufficient to insure the punishment, of offenders.

A bitter struggle was started in the Legislature a year or more ago to repeal the law, so seriously had it affected the adulterators, and, with the aid of money lavishly expended, nearly succeeded in its purpose. The effort was, however, defeated, and the beneficent features of the act are now so apparent that it is probably now firmly established against any opposition which can be brought to bear.

Dr. Samuel W. Abbott, the Massachusetts Health Officer, stated recently that there was a marked improvement following the efforts of the Board in the quality of all articles formerly adulterated, and that this was especially true of milk.

In 1883 there were fourteen hundred samples of articles analyzed, including three hundred of milk. The percentage of adulteration in articles of food was forty-seven per cent., in milk seventy-eight per cent., and in drugs forty per cent.

There were seventeen prosecutions conducted by the Board, and in fourteen convictions were secured, while in two adulteration was clearly proved, but for technical defects the indictments failed; in the remaining case the defendant died before trial.

For 1884 the full details of work have not been published, but Dr. Abbott says that there were 2644 articles analyzed, and that the law was efficiently enforced, there being fifty prosecutions, nearly all of which were followed by convictions.

In New York the Health Board is a dignified but rather inefficient body, and with a good law back of it the prosecutions have not been very vigorously carried on, although evidences of adulteration are patent on every hand. The report for 1884 has not been published, but in 1883 there were twenty-four indict-

ments found, though only eight convictions were secured. The practicability of enforcing the law is clearly shown by the success attending the efforts of the Dairy Commissioner, Josiah K. Brown, in connection with the oleomargarine law passed at the last session of the Legislature. Less than a year has passed, but in the report just submitted to the Legislature he states that eighty per cent. of the traffic has been broken up, and that sixty arrests have been made, resulting in eleven convictions, four acquittals, and the remainder of the arrested persons are still under indictment or examination in the police courts. If such success attends the working of a law the constitutionality of which is still unsettled in the courts, it is likely that a more vigorous enforcement of the general law would result both in the conviction of offenders and in improvement in articles offered for sale. This is rendered the more probable from the success which has followed the admirable work of Dr. Cyrus Edson, of New York City, in detecting and punishing the adulterations which abound there. The papers have recently contained full reports of his crusade against adulterated candy, and this is only one of the many ways in which his activity has found expression. So much attention, indeed, has this phase of his work attracted that there is now pending in the Legislature of that State a law relating especially to the punishment of adulterating candy. Such a statute is certainly not needed, for the general law is fully adequate to cope with the evil, but what is demanded is more vigor on the part of the public officials.

The whole question of adulteration is becoming more and more important in all of the States, and better legislation than is now generally found will probably result from the agitation.

#### REPORT ON RECENT PROGRESS IN MEDICAL AND SURGICAL ELECTRICITY.

BY WM. R. D. BLACKWOOD, M.D.,  
Electrician and Neurologist to the Presbyterian Hospital.

*ELECTRICITY AS A STIMULANT IN CARDIAC  
AND RESPIRATORY FAILURE.*

DR. GRISWOLD, of New York, has made many observations on this point, and reported his views to the New York Academy of Medicine recently.



He insists that stimulation of the heart can be effected only by direct application to the organ. If the current be applied to the cervical pneumogastriacs, depression is produced, whether by galvanism or faradism.

Stimulus of the phrenic nerves produces acceleration of respiration, and this procedure was, therefore, proper in itself; yet, because of the close relation of the phrenic with the pneumogastric in the neck, extreme difficulty would be found in separating the action of the current on the two.

#### ELECTRICITY IN POISONING.

In poisoning from aconite, electrical stimulation of the pneumogastric was harmless because the nerve was already paralyzed, hence the attempt to stimulate the phrenic might be safely made. In this we do not agree with the author, as the pneumogastric cannot truthfully be said to be *paralyzed*: its function is merely interfered with more or less in cases of aconite-poisoning where recovery is reasonably certain. Other means are much better than electricity under all circumstances, and it is simply a waste of precious time to experiment with it.

In chloroform-poisoning electricity at once produces fatal results, even with mild currents, to either the pneumogastric or the phrenic. In ether-asphyxia electrical stimulation was proper, but in opium-poisoning much care was necessary under all circumstances, although the respirations could be maintained by either current.

The reviewer recalls a case (some years ago) in which, after the apparent failure of atropia and alcohol, the respirations were maintained by faradism in a case of opium-poisoning for twelve hours, and the patient saved.

The conclusions, therefore, are as follows: 1. Electrical stimulation of the phrenic nerve should not be undertaken without the reflection that the current will at the same time reach the pneumogastric. 2. Only mild currents should be applied, and their effects carefully watched, but especially with reference to the heart. 3. The sudden and careless application to the neck of a current sufficiently strong to produce pain or muscular contractions in other parts of the body should be especially avoided.

#### ELECTRICITY IN INTESTINAL OBSTRUCTION.

Bloch, in *Vratch* (*Journal de Médecine de Paris*), relates an instructive case, in

which a patient, whose bowels had been confined for a week, suffered from obstinate hiccough and vomiting. All purgatives and enemata failed, and finally electricity was applied by introducing a rheophore high up into the rectum, the other being labile over the abdomen. Ten applications of ten to twenty minutes each were made at intervals of three hours, and a stool followed the fourth application. The hiccough ceased after the first dose. The writer has noted this method several times in the medical press, the last being presented before the Philadelphia County Medical Society in February. Even in cases of invagination he has had success after failure of all other measures.

#### ELECTRICITY IN STOMACH-DISORDERS.

Dr. Apostoli gives an elaborate and interesting *résumé* of his treatment of epigastria, gastralgia, vomiting, and certain nervous affections allied to hysteria, including the vomiting of phthisis and pregnancy. He relies upon electricity in the varied dyspepsias and other non-cancerous affections. He suggests a definite plan as follows:

1. Bi-polar application to both pneumogastriacs as near as possible to the clavicle, with a constant, uninterrupted current, the intensity proportioned to the receptivity of the patient and the gravity of the affection. From five to fifteen milliampères through a rheostat is the ordinary amount to be used.

2. The duration is proportional to the character of the disorder, and should be maintained until a definite improvement is felt at each sitting.

3. Galvanism is preferable, and particularly so during digestion, hence a light repast is given before the application. He believes digestion is promoted by electricity, and he advocates frequent repetition of the current in all cases where possible.

For many years past, affections of the stomach, spleen, liver, and pancreas have been subjected to electrical treatment by the reviewer as an adjuvant to other measures, or without drugs of any kind in numerous cases, and in no class of disease has galvanism particularly proved of more service. An account of some common disorders thus treated is given in three articles elsewhere.\* The paper of Dr.

\* Medical Bulletin, October, November, and December, 1884.

Apostoli is worthy of careful consideration by the general practitioner, and, as it calls attention to a class of diseases which are the bane of practice, the assistance to be obtained from electricity is especially worthy of critical study in private practice. The points to be observed in applications to the neck are already noted above, and every application, if properly made, should be well tolerated and without any consecutive eschar. In order to prevent any pain and all danger of cauterization, the rheophores should be carefully covered with very soft chamois-skin, under which should be placed one or two supplementary layers of moist agaric, to concentrate to it a part of the galvano-caustic action. Any battery will answer, provided that it is furnished with a collector that will admit of a grouping two by two, or, better, one by one. A galvanometer of intensity divided into milliampères must of necessity be inserted into the circuit.

A comparative chemical study of the two processes of galvanization (mono-polar or bi-polar) of the pneumogastric gives the preference to the latter. The unanimous opinion of all the patients who have been called upon to judge between their relative values has been that the simultaneous galvanization of the two vagi nerves in the neck (bi-polar) is the most rapidly active and efficacious.

In conclusion, the continuous galvanic current, well regulated and localized, is the medicine for dyspepsia, gastralgia, or vomiting. If these symptoms be purely nervous or reflex, it exercises an immediate and sovereign action upon them. In all other cases, without supplanting classic therapeutics, it is destined to serve as an active auxiliary.

The curative action incident to a course of treatment in constipated cases is alone worth all the trouble incurred, because in numerous cases the drugs ordinarily employed to overcome this defect have a bad effect on the stomach, retarding its secreting action, and purgatives, as a rule, are much more objectionable than any other remedies. Frequently a small dose of any laxative will sweep away the little gastric or pancreatic juice present, and induce such action as will force the partly-digested food beyond the region in which it should remain until digestion is well advanced, whereas electricity properly applied will provoke the secretion of the various glands,

and thus normally induce the onward passage of the ingesta,—not before, but after its digestion.

#### DIFFERENCE IN THERAPEUTIC EFFECT OF CURRENTS.

Experiments show a difference in effect of faradism and galvanism on vascular neuroses, the former dilating and the latter constricting the dilated vessels. The temperature also is increased by the faradic and decreased by the galvanic current. No difference is exerted with galvanism by altering the direction of the flow.

#### ELECTRICITY IN GYNÆCOLOGY.

The bi-polar method in treating metritis and chronic affections of the uterus is advocated by Apostoli in *L'Union Médicale*. The method gives more positive effects in any case. It is more readily performed, and the whole benefit is given to the uterus instead of being largely wasted, as in the uni-polar application. The treatment is preferred by patients, as it is less painful under suppression of the cutaneous pole, and stronger currents can be borne, particularly if the intra-uterine pole be kept well up to the fundus. Apostoli, however, seems to employ crude instruments, for he speaks of having several in which the poles vary in their distance apart. Our own plan, for ten or twelve years past, needs one rheophore only, the central or intra-uterine pole of which is movable and flexible. The outer pole terminates in a ball which rests against the os and cervix, and through the centre of this extends the intra-uterine stem. Both poles are thoroughly insulated, except at the cervical ball in the one and the olivary bulb in the other. The instrument being placed in position against the cervix with or without a speculum, the intra-uterine rod is pushed up to any desired point and the current established. The preferable way is to push the olivary point up to the fundus. Where there is much ovarian congestion I sometimes use a divided conductor for the positive, sending one-half through a small sponge-handle to an ovary and the other to the fundus by the intra-uterine stem, the cutaneous rheophore thus not causing much irritation. One or both ovaries can be thus treated. But if the congestion be confined principally to the ovaries, then I place a rheophore over each ovary simultaneously and divide the positive between them,—the

negative to the fundus by an insulated sound or a bougie.

#### ELECTRICITY AS A GALACTAGOGUE.

It is suggested by a correspondent in the *American Journal of Obstetrics* for March that a collective investigation would develop the actual value of electricity in deficient action of the mammary glands, the reports so far being contradictory. The idea is a good one, as we have had the happiest results from electricity in this direction, although one or two friends were not successful in securing equally good effects because of their want of appropriate and efficient apparatus. Static electricity has been used by the reviewer in thirty-seven cases altogether. Of these, twenty-nine patients obtained a full action permanently, six were much improved, and two others were not benefited. The last two were phthisical and anæmic. Three of the six improved had post-partum hemorrhage, and they were considerably reduced in vigor thereby. We learned that after leaving us they gradually, under the systematic employment of faradism, became restored and nursed their infants the usual time. The other three were obliged to use the bottle in addition to nursing their children.

To be efficient, static electricity must be thoroughly applied by a good machine. A little school-apparatus will not do. The application should be made at least once daily,—it were better several times each day. After the gland starts into action, massage and faradism will develop it rapidly in the majority of instances. Firm uterine condensation secured by faradism arrests notably the normal action of the breasts, and prevents leakage of blood from the womb if involution is not satisfactory. Correspondents have inquired if the heart was affected by the sparks, and we may here state that such was never the case, nor was there any difference observable in the quality or character of the milk, which, so far as we know, was always normal. The infants in our own cases uniformly thrived satisfactorily.

#### ELECTRO-PUNCTURE IN THE TREATMENT OF LEAD PALSY.

Dr. Lopez Alonso relates the case of a man, 36 years of age, a printer, who suffered from severe lead-poisoning. The hands and fingers were flexed, and the electrical contractility in the extensor

muscles was abolished. Not being able to produce contractions with the strongest currents when the electrodes were placed on the skin, the writer bethought himself of electro-puncture, which he had already employed in the preliminary examination. By this means the muscular contractility was revived, and after a few days reactions could be obtained with electrodes placed on the integument. In about a month the wrist-drop was cured and the patient was able to resume his occupation of type-setting.—*Revista de Medicina y Cirugía Prácticas*, February 7, 1885.

#### ELECTRICITY IN GENERAL PRACTICE.

Dr. A. Hughes Bennett has called attention lately to the need of greater study in a scientific manner of the numerous uses to which either current may be put in therapeutics. In diseases where functional activity is diminished the stimulating power of both currents is largely indicated. The obscurity attending many classes of nervous affection, such as atrophy, anæsthesia, paralysis, sclerosis, etc., is no bar to the employment of electricity in an empirical manner, for the inhibited conduction and abnormal nutrition-changes are favorably influenced thereby, and the catalytic effect of the galvanic current particularly is valuable in influencing the trophic elements of the tissues and facilitating absorption of morbid products.

The sedative and alterative effect is also valuable in excited functional conditions for the relief of pain or spasm. The value of electricity is not simply a transient matter at the time of application, but its results are frequently permanent, hence its uses are far-reaching.

246 NORTH TWENTIETH STREET.

#### "STRANGE ADVENTURES" OF A BULLET.—

A case of pistol-wound of the thorax has recently been recorded by Schmidt, in which the bullet penetrated one of the left pulmonary veins and then passed along it into the cavity of the left auricle, merely leaving a small erosion on the posterior wall of the vein. From the auricle the bullet must have gained access to the left ventricle, and must then have been forced into the aorta, and so down to the femoral artery, where the projectile was found, apparently accidentally, at the autopsy. The reporter declares that no other explanation of the presence of the projectile in the femoral artery can be given.—*Lancet*.



## TRANSLATIONS.

**TOXIC EFFECTS OF ANTIPYRINE.**—The rapid decline of high temperature and the slow and gradual recovery of the same, often requiring twenty-four hours, is characteristic of the ordinary effects of antipyrine. In larger single doses it causes death through cardiac paralysis; in somewhat smaller doses it affects the nervous system in such a way as to produce irritation of the central apparatus, as shown by general tetanic muscular cramps and increase of blood-pressure, and then a paralysis with loss of reflex excitability and lowering of the blood-pressure occurs. In cases of severe diphtheritic poisoning Dr. Demme warns against the use of antipyrine, on account of the not unusual concurrence of acute myocarditis. In a case of diphtheria in a boy of four years of age, instead of a decline of the fever there was a temporary antipyrine intoxication, with irregular, fluttering heart-movements, dilated, immobile pupils, and upon moving the extremities there occurred ascending convulsive movements of the muscles of the limb.—Demme, *Fortschritte der Medicin*, 1884, Nos. 20 and 21.

**DIPHTHERIA TREATED WITH LEMON-JUICE.**—A boy  $8\frac{1}{2}$  years of age was attacked by diphtheria after several days' malaise and sore throat. The false membrane was at once painted with lemon-juice every two hours, with marked effect. Within a half to three-quarters of an hour after each application the membranes were greatly reduced in thickness and only existed as a grayish film; but they showed great persistence and rapidity in reforming again until the case began to decline on the fourth day and recovered at the end of a week. The usual nourishing and tonic regimen had also been pursued. (Report upon some cases of diphtheria observed and treated in the General Hospital in October, 1884, and March, 1885, by M. Becigneuil.)—*Gaz. Méd. de Nantes*, No. 6, April 9.

**GOUT OF THE TESTICLE.**—At a meeting of the Société Médicale des Hôpitaux, M. Guyot reported a case of swelling of the testicle in a gouty subject, or gouty testicle. This swelling disappeared at the end of a fortnight, during the develop-

ment of gouty joint-inflammations. The gouty orchitis is not mentioned usually in the text-books; he only knew of one observation, which had been mentioned by Paget. M. Millard reported a similar condition occurring in his own person, preceding an attack of gout; it was a painful gouty orchitis without epididymitis.—*La France Médicale*, No. 8.

**PHYSIOLOGICAL ACTION OF COCAINE.**—Brown-Séquard, in a recent communication to the Société de Biologie, stated that in his investigation into the action of cocaine he had been able to demonstrate experimentally that this substance did not act locally in producing anæsthesia, but, on the contrary, by inhibition from a distance. M. Charpentier announced that cocaine is a powerful poison—more active than strychnine or atropine—upon infusoria and chlorophyll.—*Le Progrès Médical*.

**BILIARY CALCULI.**—Huchard uses the following combination in the treatment of gall-stones:

R Res. podophylli,  
Ext. hyoscyami,  
Saponis, aa gr. v.

Make ten pills, of which one or two may be taken daily. The addition of a small amount of rhubarb, or, if constipation require it, of aloes, makes the above a useful formula for a cholagogue cathartic.—*Revue de Thér. Méd.-Chir.*

**HÆMOSTATIC PILLS.**

R Ext. ergotæ,  
Quininæ sulphatis, aa 3ss;  
Pulv. digitalis,  
Ext. hyoscyami, aa gr. iij.

M. et divide in pilulas no. xx. Take from five to eight daily.—Huchard.

In this formula the ergotine and quinine produce contraction of the vessels, the digitalis controls the circulation, and the hyoscyamus allays the nervous excitement.—*Revue de Thér. Méd.-Chir.*

**IODOFORM SOLUTION FOR PARENCHYMATOUS INJECTION.**

R Iodoformi, 1 gr.;  
Benzol, 9 grs.;  
Ol. vaselini, 11 grs.;  
Ol. gaultheriæ, 2 drops. M.

For injections into goitre and non-caseous lymphatic glands, as advised by Mosetig.—*Revue de Thérapeutique*.

PHILADELPHIA  
MEDICAL TIMES.

PHILADELPHIA, MAY 2, 1885.

EDITORIAL.

ANNUAL MEETINGS OF THE MEDICAL AND SURGICAL ASSOCIATIONS.

**D**URING the last week the American Medical Association held its thirty-sixth annual meeting in New Orleans, and the preceding week the American Surgical Association held its fifth annual session in Washington, D.C. There is such a wide difference between the two Associations in respect to organization, aims, and methods that they do not admit of comparison, and nothing like rivalry can be said to exist between them; yet there are points of contrast which are not altogether to the disadvantage of the smaller organization. In the first place, a mode of organization suited to the smaller society is manifestly unsuited to the larger one. The mode of voting practised at the meetings of the American Medical Association is altogether unsatisfactory and unparliamentary. Such a large proportion of the audience is made up of persons who are not entitled to vote, though many of them do vote, that it is impossible to tell whether a motion which has been submitted to the voice of the meeting is really adopted or not. Concerning the aims of the Associations, they are widely different. The smaller Association exists for purely scientific purposes, the larger mainly for professional.

The eminent services of the older organization in the medical history of this country, in uniting the profession and securing the almost universal adoption of a uniform Code of Ethics, and in elevating the standard of medical education, cannot be too highly appreciated, and must

always be gratefully acknowledged. Its scientific work, however, has been hampered by defects that are patent to every one, and which might easily be remedied. We do not institute a comparison, therefore, between the scientific work of the Medical and Surgical Associations, which under the present circumstances would be unjust to the former. In a very large Association it is impossible that all should have opportunity to read papers. It is to the interest of the members that only those best qualified to do so should present communications, so that the time of the meeting should not be wasted by others. Unfortunately, under the volunteer system those who are the most anxious to read papers are not necessarily those best qualified to do so. It results, therefore, that too much responsibility is thrown upon the officers of sections in preparing the programme for the meetings. A better plan would be to send the titles of papers, accompanied by a summary of their contents, to a committee of each section for consideration at a specified time before the meeting, for approval or rejection. Fewer papers should be read, and the discussion should be opened by members appointed for the purpose, who then would come prepared to speak upon the subject presented for consideration. The membership of the sections should be permanent, each delegate selecting the section to which he wishes to devote the most of his attention. Members of sections should nominate their own officers for the succeeding year, as contemplated in Dr. Keller's amendment. It might be a suggestion worthy of consideration to have the business meetings held in the evening, when only those who are entitled to vote shall be admitted, and to have the sections meet in the morning; the addresses of the chairmen could be delivered before the various sections,—indeed, in some cases it would be an improvement to have them read by title only. There should be a standing Committee on Arrangements for each meeting, so that

the lessons of experience might be utilized. At present the same blunders and the same difficulties with registration are repeated at each meeting. The prospect of a biennial session at Washington will do much to improve the Association in many respects. The decision of the Surgical Association to hold its meetings in that city was a wise one, although it is questionable whether holding its session in such close proximity to the Medical Convention will prove advantageous to it. Its last meeting was the most successful it has ever held, and on account of the importance of the papers and discussions we have published a more extended report than usual,—a perusal of which we hope will be sufficient to spare us the necessity of making any apology for devoting so much space to the proceedings of the Congress of American Surgeons, as this Association may justly be called.

#### A PENNSYLVANIA TYPHOID OUTBREAK.

THE reports received from the town of Plymouth, near Wilkesbarre, in this State, which is chiefly inhabited by miners and their families, announce a remarkable endemic of bowel-disorder, decidedly typhoid in character, although apparently not typical typhoid fever. Making allowance for exaggeration, it seems evident that in this small community more than a thousand persons have been stricken with the disease, and quite a number have perished. The outbreak has been directly traced to insanitary conditions, poverty, and filth, but more particularly to the contaminated water-supply. The drinking-water is taken from wells which indirectly receive the drainage of the town, or from the river, which contains the sewage of Scranton and other places only a short distance above the town. The river being unusually low at present, the sewage has been consumed by the people in a less

diluted form than usual; hence the pestilence, which in many features recalls the outbreak which occurred in Eastern Tennessee some months ago, and is not very dissimilar to the winter cholera which sometimes prevails in Chicago.

The sanitary lessons of this endemic come very opportunely in aid of those who are endeavoring to put Philadelphia in proper condition to meet a cholera-invasion, and who seek to improve permanently the water-supply. We have already pointed to the danger of the use of pumps in the densely-populated parts of the city and in crowded graveyards. The Board of Health should at once take away these distributors of dilute sewage, of which there are still quite a number remaining in the city. The rôle of the pump in disseminating cholera-germs has been demonstrated in previous epidemics, but it is not only during the prevalence of cholera that such water is unfit for use. The pumps must go.

The outbreak also furnishes a powerful argument against the use of river-water contaminated by the drainage of large communities along its banks. This applies to the Susquehanna, but more forcibly to the Schuylkill, and sustains the arguments of the Chief Engineer of the Water Department in favor of obtaining a better water-supply for this city.

The occurrence of an endemic so near at hand will also arouse public sentiment in favor of improved sanitary measures, and will greatly aid the city health authorities in their task of placing the city in good hygienic condition.

Finally, it is to be hoped that this disaster to Plymouth will not only bring about a reaction that will improve its own condition from a hygienic stand-point, but also will strengthen and confirm the growing sentiment in favor of the establishment of a State Board of Health vested with ample authority to perform the duties that rightly pertain to it.



## LEADING ARTICLES.

## NERVOUS SYMPTOMS OF ENTERIC FEVER.

## I.—CLINICAL CONSIDERATIONS.

THE attention of clinicians has been for a long time directed to the functional disturbance of the nervous system in enteric fever. While, on the one hand, it is known that gross organic lesions of the nervous system are rare in this disease, nothing, on the other hand, is more variable than the form and intensity of disturbances of function. Liebermeister has described four degrees of functional disturbances of the nervous system which in the grave forms correspond with the four successive stages of the attack, and which are, in fact, nothing more than the occurrence, progress, persistence, and decline of the nervous accidents of the disease. Riberolles, in a recent monograph upon this subject,\* declines to accept this arrangement, as not sufficiently comprehensive. He prefers to describe the nervous troubles in accordance with their degree of frequency, as follows:

(A) *Stupor*.—This condition, *τῶθος* of the older writers, occupies the first place in the order of frequency among cerebral disturbances. It is, in fact, the most constant phenomenon of enteric fever, and that which gives the disease its most striking character. It is the first sign of the temporary abolition of cerebral activity. In its feeblest forms stupor appears to indicate rather repose than a suspension of the mental processes. Homolle has well described this condition in the following words: "So long as no impression from without disturbs his faculties, the patient maintains complete bodily repose, to which the repose of the mind fully corresponds. Voluntarily he executes no movement, utters no word, and, if we may judge by the impassibility of his features, is without thought or active sensation. But an appeal to his attention or a slight excitation of his senses suffices to arouse him from his torpor and to call forth acts and words indicating that to a considerable degree the integrity of his memory, his mental qualities, and the soundness of his judgment are preserved."

In the greater number of cases this re-

action is imperfect. Many of the movements which the patient seeks to execute are impossible; others are made slowly, as though a certain amount of feebleness accompanied the intellectual repose. To the patient in this condition the ordinary every-day inquiries of the physician appear to be a matter of gentle astonishment. The eyes are turned slowly, the replies come slowly, but are nevertheless appropriate and reasonable. Notwithstanding this, the patient does not move; the apparent tranquillity of his face is commingled with hebetude. The somnolence grows more profound and more stubborn. It is sometimes so pronounced that the patient seems to doze between his words. At this point he begins to ramble, and his utterances are incoherent. His memory, to some degree, is at fault, and the enfeeblement of the body and the mind progresses to the point at which, for example, when he is asked to show his tongue he protrudes it with great slowness and only after having several times been requested to do so. Frequently all idea of time and of place is lost, and he no longer recognizes those in attendance upon him; he is indifferent to what is said to him, surrounding objects fail to attract his attention, and he is no longer preoccupied with his own condition.

The hebetude presently becomes absolute, and the motionless features lose the lines of expression. It is no longer possible to arouse the patient sufficiently to make reply; he contents himself with turning his eyes to the side, or with some feebly-expressed gesture. Again, he seems plunged into a semi-comatose state, the eyelids are half closed, the pupils dilated, there is complete abolition of consciousness and reasonable action. When this condition does not terminate fatally, it is for the most part of brief duration.

These different degrees of stupor follow one another, as a rule, in the same individual, developing from one into the other with the progress of the attack. Before the first manifestations of the fever there is simply inaptitude for the ordinary occupations of life, some sense of weariness upon mental effort, and even when, at the end of the attack, the fall of the temperature indicates the approach of convalescence, the patient still remains indifferent and apathetic as during the course of the disease. In fact, the mental functions are

\*Dr. Emile Riberolles, Contribution à l'Étude des Phénomènes nerveux, Paris, 1884.

in many instances feebly performed for some time after the convalescence has been fully established. With reference to the frequency of stupor, Riberolles found in one hundred and fifty cases, of which thirty-six died, this symptom absent in fourteen. In one instance it showed itself on the first day, and the patient died in the course of the second week. Three times it appeared during the first week, the disease in each case resulting fatally. Louis observed somnolence in one hundred and two of one hundred and thirty-four cases; among forty-six fatal cases it showed itself four times in the first day and in five other cases in the course of the first week, whilst it only occurred at this period of the disease in two out of eighty-eight patients who recovered.

(B) *Prostration*.—Side by side with stupor, and equally frequent, is enfeeblement of the forces of the body. Whilst the intelligence and the will are yet intact, the earliest indications of disturbance of the function of the body, forerunning, indeed, the beginning of fever, is an extreme sense of weariness. This is rather a sort of lassitude, a desire for repose, than a true weakness. The degree of the prostration corresponds to the intensity of the attack and the period at which it occurs. Often, however, patients apathetic and in appearance extremely feeble are capable of momentarily displaying an amount of strength that is truly astonishing. There is rather oppression than suppression of strength, and the patient appears to preserve in fact an amount of energy of which he only at long intervals gives the slightest manifestation.

As the mental power declines the muscular power grows more feeble, and there is in the movements no longer either strength or assurance. The patient is scarcely able to stand erect, his legs bend beneath the weight of his body. This condition is extremely variable, and is to a great extent dependent upon the intensity of the attack, as well as upon individual conditions.

Whilst the degree of prostration may be measured by the facility with which the patient moves in his bed, by the briskness and precision of the various acts which he performs, it is necessary in this connection to pay heed to his intellectual state, and to the degree of disinclination to movement which is present. When the muscular feebleness reaches a high degree, the

condition of the patient seems almost paralytic; but an important factor in this form of coma is to be found in the mental state. The patient lies upon his bed almost like an inert body, yielding without resistance to the laws of gravity, slipping down towards the foot of the bed.

Upon the other hand, it sometimes occurs that during the greater part or even the whole of the sickness the forces of the body undergo but little diminution, and it is only upon the occurrence of some complication that the grave nature of the malady is discovered. It is to this group of cases that the term *Walking Typhoid* has been applied. Among sixty-two patients observed by Murchison, seven were obliged to betake themselves to bed upon the first day, twenty-one only after the first week, six in the third week. It is extremely difficult, however, to designate with precision upon what day of the sickness the patient goes to bed or enters the hospital. Riberolles insists upon the fact that this difficulty is equally great in military as in civil practice. So soon as the affection is recognized, or even suspected, the patient is sent to the hospital. On the other hand, many cases present at the outset the symptoms of some simple gastric disturbance, or a bilious attack, and it is only after the course of some days that fever and debility suggest the true nature of the case.

The palsies which occur in the course of enteric fever must be looked upon rather as complications than as nervous symptoms properly so called. They are very rare during the course of the fever. The most common form is hemiplegia, which is not infrequently associated with hemianæsthesia.

(C) *Delirium*.—Like stupor and debility, delirium is a phenomenon rarely absent during the course of enteric fever. Like them, it presents the greatest range of variation, both as regards duration and intensity. In most of the cases in which it is present, it is a transitory phenomenon of short duration and in general moderate. Of Riberolles's one hundred and fifty cases, twenty-two only were without delirium throughout the attack. Murchison also noted the complete absence of intellectual disturbances in some of his cases. And of Louis's one hundred and thirty-four cases, thirty-two presented neither somnolence nor delirium. As Louis pointed

out, delirium usually follows somnolence; it is rarely observed in the early days of the attack, appearing in most cases not before the sixth or seventh day. According to Homolle, at first, and in certain subjects throughout, delirium comes on towards evening, at the time when the tranquil somnolence of the day gives place to restlessness. It is sometimes preceded by impatience, a sense of annoyance, flushing of the face, increased headache, and dilated pupils. It is still more frequently ushered in by disturbed sleep, by fatiguing dreams, and by a sense of weariness on waking, so extreme that the patients fight off sleep for fear of it.

Pronounced delirium rarely begins abruptly. The patient, between sleeping and waking, utters meaningless expressions, words without order, but when fully awake appears to be lucid. In children there are cries during sleep, often cries of fright accompanied with trembling. Again, a child, though roused, apparently dreams on, much agitated and in terror. This form of delirium is associated with hallucinations of sight and hearing. The child replies to imaginary appeals, or speaks to persons whom he seems to see in clouds or in some picture.

Not infrequently, delirium is continuous, with exacerbations at nightfall. Here we distinguish two forms. A calm or passive delirium, in which the patient talks continually, uttering disconnected words accompanied by ceaseless and equally disconnected movements; he seeks to rise from his bed, to go out, opposing to the attendants a quiet but determined resistance; or else he is violent and angrily opposes those who seek to detain him. He may then become dangerous to himself or to others. Many are the instances in which patients in this form of delirium have eluded the vigilance of their attendants and thrown themselves from the window.

Sometimes the excitement is so great that the patients are controlled only by force. Their struggles are energetic, even violent, and their outcries furious. This condition may be prolonged several days, or even until the fatal termination.

Roger mentions the case of a child whose cries were so prolonged and violent that the passers-by collected in a crowd under the windows of the house. Violent delirium of this kind occurs only in grave cases, usually only at intervals between

periods of quiet. Towards the close of the illness, when the fatal issue is at hand, it alternates with profound debility and semi-coma.

Delirium occurs at a variable period in the course of the sickness. Sometimes it is among the earliest symptoms. Riberolles saw four cases delirious at the time of admission at the hospital; Louis, two who were delirious the first night of their sickness. Bristowe observed maniacal delirium on the second day. Murchison reported a case who on the fifth day had such a delirium that he was thought to be insane. Mottet mentions the case of an enteric fever patient who was placed in an asylum before the nature of his sickness was discovered. Hannot and Bucquoy have observed, at the beginning of enteric fever, delirium accompanied by ideas of grandeur or profound melancholy. A patient of Chomel demanded without cessation that he might be bled. A patient of Trousseau refused all nourishment and insisted upon being fed with an œsophageal tube. In military hospitals it is not uncommon for the patients to demand their discharge, insisting upon it that they are not sick.

That form of delirium well described by Trousseau and Becquerel as occurring upon the decline of the fever or during convalescence, and called by French writers the delirium of inanition, cannot, as it occurs in many other conditions, be properly described in this connection.

(D) *Vertigo*.—This distressing phenomenon sometimes occurs at the beginning of the sickness, and has much to do with the general malaise which the patient experiences. It is frequently associated with the disturbances of sight and hearing which are so common at the beginning of the fever, as phosphenes and tinnitus aurium.

(E) *Disturbances of Motility*.—Muscular disorders are sometimes the result of a profound disturbance of cerebral innervation, sometimes they are of spinal origin. The most frequent form is *tremor*, which shows itself for the most part at that period in the course of the disease when disorders of the nervous system, and especially when delirium, becomes most marked. Trembling affects especially the lips, the face, and the upper extremity. *Subsultus tendinum*, which may be perceived by the touch when it is not visible, occurs in the greater number of cases of severe type.



*Carphology* is equally frequent in grave cases. The patient seeks to seize with his hand objects suspended or floating in the air, or restlessly grasps and fumbles at imaginary objects in the bedclothing, his countenance usually being impassive and without expression.

*Partial contractures* are sometimes observed. *Spastic distortions* of the neck and trunk have also been recorded. *Cataleptiform rigidity* was observed by Barth and Murchison, but invariably in women. Riberolles saw in the same individual strabismus and contracture of the upper extremity.

*Epileptiform convulsions* have been occasionally noted. Chomel observed in five cases general convulsions which were rapidly followed by death. Murchison observed in two thousand six hundred and ninety cases of enteric fever in the London Fever Hospital, general convulsions in six instances, in one of which they were ascribed to uræmia. In most cases convulsions have occurred in infants, and they have preceded a usually fatal issue by only a few hours.

It is merely necessary to allude to the *fibrillary contractions* which are observed in the muscles upon light percussion or pinching.

(F) *Disturbances of Sensation*.—Certain of the disturbances of sensation, such as muscular pains and visceral neuralgias, produced by direct changes in the organs, are by no means peculiar to enteric fever. Others are the direct outcome of the disturbances of nutrition in the nervous system peculiar to this disease. Chief among these are cephalalgia, hyperæsthesia, anæsthesia, and disturbances of the special senses.

1. *Head pain* is among the earliest manifestations, often preceding by several days the rise in temperature, and rarely altogether absent. Of one hundred and thirty-four patients studied by Louis, in six only was headache absent. Riberolles found it wanting in the beginning in ten only of one hundred and fifty cases which he analyzed, and of these ten, eight suffered headache within five days of the commencement of the attack. In the other two, intense backache (rachialgia) began during the period of incubation and continued throughout the attack. Headache almost invariably augments in intensity as the temperature rises. Not infrequently it temporarily disappears after free

epistaxis. It is generally dull, sometimes frontal, sometimes diffuse, less frequently occipital. It is much intensified in meningeal complications.

Occasionally, headache is paroxysmal, with complete intermission. Rosenbach has noted true neuralgia, corresponding to the distribution of particular nerve-trunks and accompanied by hyperæsthesia.

2. *Hyperæsthesia*.—This symptom is sometimes intense, especially in the spinal region and in the articulations of the extremities. Deep hyperæsthesia of the muscular masses of the limbs is occasionally encountered, and is probably dependent upon serious alterations of nutrition. Cutaneous hyperæsthesia is rare, being observed chiefly in women and children. Murchison has called attention to the fact that the cutaneous hyperæsthesia of enteric fever tends to assume the paraplegic distribution, being most marked in the legs and lower part of the trunk.

3. *Anæsthesia*.—This phenomenon is frequent and of varying degree. It is dependent to a great extent upon the condition of the central nervous system, and in fact corresponds to the degree of stupor. Anæsthesia of the mucous tracts is one of the causes of involuntary evacuation on the one hand, of retention of urine on the other.

Considerable difference of opinion obtains with reference to the *tendon-reflexes*. According to Ballet and Strumpell, these reflexes are exaggerated. Playand also found them exaggerated in fifty-eight cases of one hundred in which they were studied. Pettit-Clerc found them diminished.

4. *Disturbances of Special Sense*.—As we have just pointed out, tactile sensations are sometimes diminished, often wholly abolished, and the cerebral disorders to which this change must be attributed will in most instances account also for the derangements of the other organs of sense.

The pupils are dilated, and in many instances there is intolerance of light, amounting occasionally to photophobia, with difficulty in distinguishing near objects. When stupor is profound the patient appears to see nothing, or rather to be profoundly insensible to visual impressions transmitted to his brain. When delirium is violent the conjunctiva is often deeply injected, and retinal congestion has been observed without retinitis.

The pupil is sometimes dilated, some-



times contracted. Murchison observed dilatation of the pupil in seventy-five per cent. of his cases. When the loss of consciousness is complete, the pupil is usually contracted.

Disturbances of the sense of hearing are not less common than those of sight. In addition to the subjective sensations of hearing which attend the beginning of the sickness in almost all cases, every degree of deafness is met with later in the course of the attack. Absolute loss of hearing is, however, rare, and, in the absence of inflammatory complications, it is unaccompanied by pain.

Certain other symptoms must be referred to disturbances of innervation, but they are for the most part directly dependent upon changes in the vaso-motor or trophic system. They include among others certain alterations of secretion, erythema, and gangrene from pressure. Finally, all the disorders of the nervous system peculiar to enteric fever are to be referred to cerebral depression or excitation, for the medulla, the cord, and the vaso-motor system appear to be only secondarily implicated.

J. C. WILSON.

(To be continued.)

## NOTES FROM SPECIAL CORRESPONDENTS.

LONDON.

THE latest new thing in medicine here is a "Year-Book of Treatment." At last it seems to be recognized that a patient does not send for a physician merely because it is customary for persons when ill to call in a medical man, nor yet, like Borthorp Trumbull in "Middlemarch," to have scientific observations made of his condition, but because he believes that the medical man, when called in, will be able to help him struggle with his malady. It used to be customary to speak of "calling in medical aid;" but that was in the days when the lancet flourished, when painful forms of counter-irritation were in vogue,—when indeed the patient got something tangible (literally as well as metaphorically) for his money. But when the expectant treatment came and the doctor looked calmly on at the struggle, ready to act if action became desirable, the expression "medical aid" died out as being to a great extent a misnomer. Now a wave of reaction seems setting in, and medical men realize that, after all, the patient does hope for some good from his medical attendant in return for his outlay. (A patient amused me very much yester-

day. She had been for some time getting weaker and thinner, with her liver out of order, while her medical man had been feeding her upon meat and giving her vegetable tonics and iron, but without good result. At last she suspected that the treatment did not suit her, and so consulted me. When asked to put out her tongue, she observed, "The other doctor never asked to look at my tongue." If he had, he might have been more successful with his treatment. "Has he been giving you steel?" I asked. "Yes, and it does not agree with my liver," she promptly added, evincing a shrewdness that took me aback. On vegetable tonics without iron, and much lighter food, she got on famously. Yesterday she called to report her improvement. Amidst her conversation she added, "And I shall have to pay him a large bill for making me worse." That is scarcely medical aid: it is rather "medical injury!")

As a consequence of this new wave of opinion, Messrs. Cassell & Co. have issued a novel book, with a large number of contributors. Dr. Mitchell Bruce presides over the section devoted to Diseases of the Heart and the Circulation; Dr. Lauder Brunton over that dealing with the Lungs and Respiratory Organs; Henry Tower over that of Diseases of the Eye; George P. Field over that of Diseases of the Ear; Malcolm Morris over Diseases of the Skin; and so on. A very interesting section is that dealing with the Acute Infectious Diseases, contributed by the late lamented Dr. Mahomed, who was anything but a "do-nothing" doctor. He commences by dealing with "The Antipyretic Treatment," and makes the subject clear and instructive. First he speaks of the abstraction of heat by the cold bath and allied measures; then of the reduction of the temperature by the administration of remedies internally, and thinks highly of the future of *antipyrine*. Then he discusses the antiseptic treatment as applying to enteric fever. He concludes by brief remarks upon the treatment of acute pyrexial states as seen in infectious fevers. The whole section seems to me worthy of careful study and reflective thought. The principle inculcated is to follow the rational indications furnished by the patient's condition. In the section on the Diseases of the Nervous System the contributor has taken another line. He has given abstracts of different articles which have appeared during the past year, in some instances appending some observation of his own.

Of the value of the book to a man fairly well read and experienced, who has not much time for fishing the seas of medical literature for himself, there seems to be no question. The various manuals issued by the firm, under the superintendence of Mr. Malcolm Morris, are commanding a good position in the market as well as in professional opinion. The older books which for long have domi-

nated the profession are rapidly giving way to younger and more advanced competitors, as it seldom happens that the man who edits the later editions at all approaches the man who originally wrote the book, Broadbent's edition of Tanner's Practice of Physic being a brilliant instance to the contrary. New books are certainly coming out here, but in sparse quantity compared to the legion springing up on your side of the water, many of which find their way over here and are in repute. Not only are the products of the United States in drugs and chemicals taking the lead of home productions, but in literature they are threatening the old supremacy of England, or rather the United Kingdom, for Edinburgh always has held a good position in medicine, and when a Dublin man does gird up his loins for a book it is usually a good one.

The utility of such a book as the one spoken of above seems to me to depend very much on the reader. If he be well grounded in therapeutics he can judge of the value of what is written; but if not well grounded, or even that but not well abreast of the times, he will be carried away by what he reads, not being able to weigh it in the balance. And this side-issue raises the question of how far does the present scheme of medical education make the most of the time which is at the medical student's disposal, it being a well-recognized fact that, in this country at least, the medical student has far from unlimited means; and this matter carries with it the question of being able to afford the time requisite for a fairly complete knowledge of medicine. In the old days, when there were few subjects to study, anatomy naturally took a prominent position. Muscles, nerves, arteries, and bones always had been and always would be, and if a man knew them all properly no doubt it was a good thing. While dissecting he was devoting some time to other collateral matter, and so there was not any particular waste of time. But things are now profoundly altered, and a man has to work pretty steadily during his four years to get up the subjects required by the examiners. He must be well grounded in anatomy, and must know how to perform major operations which he will never perform. They are very unlikely to come before him, and in these days of railways and telegraphs, when such a grave case does crop up, some man of repute will be called in to perform it. In the old days a man was thrown upon his own resources far more, speaking broadly, than at the present day, and to be able to talk of having performed such and such an operation was of signal service to a man in society and in spreading his reputation. Now, no doubt it would be well for every medical man in the country to be able to cut for the stone, but how many will ever attempt the operation? It may be necessary to teach every man how

to operate for hernia, to tie an artery, or amputate a limb, etc., in order to meet emergencies, but a great many operations he sees performed at the hospital are matters with which he will never be personally concerned. It is on the side of anatomy, and to a less extent surgery, that economy must be practised, if some change has to be made. Surely, too, a great deal of time is spent on *materia medica* with disproportionate results. A medical man now deals with a reputable druggist, and buys not raw materials, but preparations, many of them very elegant. Why should time be spent over acquiring knowledge which scarcely can ever come into play, when so much that is highly desirable is not even attempted? To my mind, being neither engaged in medical teaching nor examining, it would be far better to cut off much of *materia medica* from one end of the lectures on therapeutics and develop the other end into some lectures on foods and feeding, or the modifications of function in the assimilative organs wrought both by disease in them and by general maladies like pneumonia or enteric fever. It is all very well to tell a man to put the patient upon slops and fluid food. But what are slops?

Some little time ago I was with two general practitioners, no bad specimens of their class,—one indeed decidedly a strong man, specially in a surgical direction,—when this question cropped up. Both got to beef-tea and milk and seltzer-water, and then the well of inspiration dried up. Nor were they behind others of whom similar interrogatories have been made. It may be all very well to say that my experience has been unfortunate; possibly it may have been; but at least it has been extensive, all must admit. As physician to a hospital of repute in the shape of the resident medical officer, favorable specimens of the latest teaching come under my notice, and it must be said that on this topic there remains to be taught much that would be useful alike to the young practitioner and his patients. The student may be taught the distinction between senega and serpentaria, calumba and rhubarb, cascarrilla and cinchona, Epsom salts and sulphate of zinc or oxalic acid, and forget all about the distinctions shortly after the last examination has been *un fait accompli*. But who tells him to remember that the saliva is apt to be limited in acute pyrexia, and therefore the farinaceous elements of food must be given in a readily assimilable form if they are to be of any use to the patient? Arrowroot was in great vogue thirty years ago, and is certainly a very soluble form of raw starch: and, after all, solubility is the essence of digestion.

The physiologist cannot well enter into these matters of clinical medicine. The lecturer on Practice of Physic feels that he cannot include these matters in his course, already inconveniently large. Who, then, should teach the

youngful mind these details, of such transcendent importance in acute disease when life is trembling in the balance and the question of supporting the patient has become imminent? Suppose the family decide to nurse the sick man: if the doctor cannot give directions as to the food and dietary, what follows? The patient gets such things as the knowledge of the family can suggest, and the feeding of the sick person is a question of such scraps of information as the family and its intimate friends may be able to muster. Suppose the patient loathes milk, how has that strength to be maintained upon which the issues will turn? The medical man has been carefully taught the use of drugs, and the medical—or rather the medicinal—management of the case is excellent; but that alone will not save the patient, any more than a ladder could consist of one side-pole. Who is to teach the other half of the knowledge requisite to give efficient succor to a man stricken down by acute disease? Certainly Sidney Ringer recognizes the necessity for some knowledge of foods suitable for the sick, and gives the ways of their preparation; but in what examination is a question on this matter ever asked? and without that the student will not get the subject up. He has enough to get up, he feels, without voluntarily and spontaneously adding to his load. Then when the examination is over he does not turn his attention to the neglected subject. Probably he does not make the discovery that some knowledge of food and feeding is desirable until by some accident the subject is forced upon his attention. Yet he is far from indifferent about the subject when it has once been borne in upon him, as the readiness with which he seizes upon anything that will help him when he has once awakened up to the importance of the matter testifies. This is a matter which will come before the practitioner from the moment he gets his first patient, yet no preparation is made for it. He never dreams of buying barks and roots in the natural state of the raw material, yet he is compelled to know them. How he has to direct the dietetic management of sick persons (and still more in pyrexial states) is never pointed out to him, yet surely such knowledge would be very useful to him—and to his patient.

Some time ago, in conversation with the manageress of one of the many Homes now springing up where paying patients can be nursed, the subject of feeding sick persons cropped up, and she was very enthusiastic about "a twenty-minutes' pudding," but of what it consisted did not transpire. A tentative remark about the digestion of the starchy materials of our food flew past her unheeded. It was soon clear that of any rational ideas of digestion, theoretically or practically, she was in unilluminated ignorance: all she knew was a little empirical knowledge, and of that she did not possess a superabundance. Who,

then, is to know this matter of feeding? Who is to tell the student of the difference betwixt raw or uncooked starch and cooked starch?—that in the latter the insoluble starch-granule is not only cracked, but the starch is largely converted into soluble dextrin by exposure to heat? that by the addition of some such soluble carbo-hydrate to meat-broths they endow these broths with a decided food-value? and that the meat-broth itself is but an agreeable vehicle for some food? Yet this is what he ought to be instructed in, if he is to be fitted to meet disease. When the patient sinks of exhaustion, of what does he die? His stores of force are run out; but what is the material which constitutes the body-force? I should read with delight a lecture upon this topic by Dr. Austin Flint or Dr. Da Costa,—or perhaps some less illustrious physician will grapple with the topic. We know that when a patient declines all food he will die in a given number of days. If a healthy person be hungered, as by shipwreck, he also will live a given number of days. In the latter case death will come all the sooner if the surrounding temperature be low. In the former case the duration of life will be shorter as the body-temperature rises. There is a question of combustion involved. It may not be the whole question, but it is an important factor! Alcohol is a readily-combustible hydro-carbon: it is used freely in critical times. Does not the idea naturally suggest itself that somehow the store of glycogen—the body-fuel—is a cardinal matter? If this be so, it is evidently desirable to keep up the stock of this material so that it may not be exhausted. If raw or uncooked starch be employed, probably it is little acted upon by the diastase of the saliva, or even the diastase of the pancreas, both organs being crippled by the general malaise. But a starch which has been rendered soluble by previous baking or by the matting process has been so modified that it is highly soluble.

I do not know how the matter stands in the United States, but as regards the mother-country, little, very little use indeed is made of those prepared foods spoken of—sometimes derisively—as "Baby-Foods," either in cases of primary dyspepsia or in that debility of the digestive organs which is involved in serious morbid conditions. Yet by the addition of cooked starch, as biscuit-powder, to meat-broth, and of malt preparations to milk or milk somewhat diluted with water, foods nutritive and at the same time readily assimilable are furnished to the sick person. Of the advantage of a fairly competent knowledge of such foods, both in their chemical elements on the one hand and in their variety on the other, probably no one can be better aware than myself: and such knowledge has been of infinite service to me, or some grave delusion exists in my mind. We must, too, remember another aspect of the subject,—viz., variety. While



we are in health we are apt to growl about lack of variety in our food: how much more, then, the sick man! If the changes can be rung by different forms of meat-broths combined variously with different prepared foods, how much variety can be furnished to sick persons, and with that how much inducement to take that nourishment, so badly wanted and so hard to supply in many instances! Sago, tapioca, and rice or barley can all be placed in a slow oven and baked for an hour without scorching, and so be prepared for use in the sick-room. When the patient is convalescing, a milk pudding can be prepared of such material, which requires but little of the digestive act. Or there are various forms of plain biscuits which are admirably adapted for use with broths or soups (the Channel Islanders always thicken their soups with biscuit broken fine or powdered). By such means a good and, indeed, substantial meal can be furnished to a phthisical person with softening tubercle and a feverish temperature,—a typical instance of enfeebled digestion due to general malaise. And as for gastric catarrh or atonic dyspepsia, such a meal would not be likely either to become enfolded in a layer of mucus or to present any difficulty as to solubility. These may seem very simple matters, scarcely worth putting on paper; but the professional acquaintance with them is not as ample as it might be with advantage to invalids and sick persons. When a medical man lifts his eyebrows or protrudes his lip when "Baby-Foods" are mentioned in relation to dyspeptics and persons acutely sick, the impression he makes on my mind is this: that he has not made a study of the matter of food and its digestion, and that he has yet to learn some matters which, when acquired, will enlarge his usefulness and strengthen his hands when he stands by the bedside of his patient.

J. MILNER FOTHERGILL.

## PROCEEDINGS OF SOCIETIES.

### THE AMERICAN SURGICAL ASSOCIATION.

THE Fifth Annual Meeting of the American Surgical Association was held in the city of Washington, D.C., April 21 to 24, inclusive, the reading-room of the Army Medical Museum being occupied during the session. The following Fellows were in attendance upon the session: J. M. Barton, Philadelphia; John S. Billings, U.S.A., Washington; R. B. Bon-tecou, Troy; William T. Briggs, Nashville; J. H. Brinton, Philadelphia; P. S. Conner, Cincinnati; N. P. Dandridge, Cincinnati; J. W. S. Gouley, New York; S. W. Gross, Philadelphia; Moses Gunn, Chicago; J. C. Hutchinson, Brooklyn; Christopher Johnston, Baltimore; Solon Marks, Milwaukee; Hunter

McGuire, Richmond; J. Ewing Mears, Philadelphia; E. M. Moore, Rochester; C. B. Nancrede, Philadelphia; C. T. Parkes, Chicago; W. F. Peck, Davenport; T. F. Prewitt, St. Louis; D. Prince, Jacksonville, Illinois; J. B. Roberts, Philadelphia; N. Senn, Milwaukee; L. McLane Tiffany, Baltimore; J. C. Warren, Boston; B. A. Watson, Jersey City; and J. R. Weist, Richmond, Indiana.

The social features of the session were studiously kept from intruding upon the scientific proceedings. The annual dinner was given at Wormley's Hotel on the day before adjournment. A pleasant surprise was arranged for the Association on the afternoon of the 22d, by Dr. Billings, who invited the Fellows to visit Baltimore and inspect the Johns Hopkins University and Laboratories. On this occasion Dr. Tiffany, one of the Fellows residing in Baltimore, entertained. The Association at lunch.

*First Day's Session.*—The meeting was called to order by the President, Dr. W. T. Briggs, of Nashville, Tennessee. The President then delivered the

### ANNUAL ADDRESS.

After thanking the Association for the honor conferred upon him in choosing him to preside at this meeting, he spoke of the usefulness of these annual sessions, where the reports of work done by the Fellows during the year are brought as contributions to the advancement of surgical science. Referring to the late Prof. Gross as one "who stood, like Saul, a head and shoulders taller than his brethren," he declared that his absence had deprived the Fellows of the Association of the light of remarkable genius and learning which had heretofore contributed so much of value to the discussions, and bowed their heads in sorrow for the loss of one whom they had come to venerate as the Nestor of American Surgery. At the last meeting, held one year ago, he lay prostrated by sickness, and soon after his spirit passed away. "To-day we realize that he whose fertile brain conceived and whose indomitable exertions brought the Association into existence and developed it to its present proud position among the scientific bodies of the country, has gone from among us forever. The death of Prof. Samuel David Gross orphaned the surgical profession of America, and removed from its ranks one who, as pathologist, surgeon, and medical philosopher, was the acknowledged peer of any in the world. He no longer lives in the flesh, but his labors in the domain of science for a period of nearly sixty years have secured for him an immortality of fame, and his utterances and achievements will descend to future generations of the profession as a precious heritage. It may be truly said of him, not only that he was the greatest of American surgeons,—for that proud eminence is conceded by all,—but that he was a truly

great man. The deference and honor paid to him the world over, and the specific distinction he bore as the gift of the two most ancient and renowned institutions of learning teaching in the English tongue, attest the exalted reputation as a scholar and scientist he had won. But he had titles to greatness other than these, and in a broad and philosophic sense superior to them. Though endowed with brilliant intellectual qualities, his life and example are truly great in that he conspicuously illustrated the value and dignity of enthusiastic labor and devotion to his profession. His publications—not one of them inferior, and some of them unequalled—constitute a pyramid of industry. He was great in displaying the possibilities of perseverance and untiring toil animated by lofty aims, and he stands forth an exemplar and majestic model on which aspiring youth may fashion itself to the noblest form of achievement. Before his day, Physick in the East and Dudley in the West had shone resplendent and without rivalry. He came to fill, and did fill,—in the professor's chair and at the operating-table,—the respective theatres of both of these justly eminent men. Both East and West—New York and Philadelphia, as well as Louisville and Cincinnati—are proud to claim that they were the seats from which he sprang and the spheres in which he taught.

"In the fulness of his stature it may be said of Gross that 'he whose fame filled the world stood, like the statue of a demi-god, poised on the apex of his monumental shaft, far above surrounding things, pointing to an earlier day-star than greets the vision of ordinary mortals.' He was indeed the Father of this Association. He has left it to us, his fellows and successors, to nurture and maintain in all the vigor and power with which he would have himself invested it, devoting ourselves to the duty of making it as great and brilliant as the fame of its Founder, and as enduring as the science to which he consecrated his life."

The remainder of the address was devoted especially to a consideration of some of the means by which the usefulness and influence of the American Surgical Association could be best promoted. The speaker advised the extension of the membership so that it would be in a higher sense representative of American Surgery, so that all talented, industrious, and aspiring surgeons could be admitted to fellowship, in order that it might escape the criticism of being a close corporation. He further held that the President's address should be scientific in character, on some subject connected with surgery, so as to constitute it a real contribution to literature. He deprecated anything like a degeneration of the meeting into a mere social and convivial gathering. The suggestion was made that the date of the meeting might be postponed to a later period in the year, so that during the summer a larger

attendance of Fellows could be obtained. Delay in the appearance of the Transactions could be prevented if the papers were handed in at the time of reading already prepared for publication. The Constitution having a provision for Honorary Fellows, and none having been named, he called the attention of the Nominating Committee to this fact, and suggested that such alliances would react beneficially to the Association. In conclusion, he congratulated the Fellows upon the success of the Association and the value of its proceedings, and concluded with the statement that much of the success of the meetings had been due to the personal exertions of the able and accomplished Secretary of the Association, who had so faithfully performed his task. The meeting was then declared open for the business of the session.

#### EXECUTIVE SESSION.

At the close of the address of the President an executive business meeting was held, at which routine business was transacted. The report of the Treasurer was referred to an auditing committee, and a committee on nominations of officers for the ensuing year was appointed, as follows:

C. T. Parkes, of Chicago, Illinois; B. A. Watson, of Jersey City, New Jersey; E. M. Moore, of Rochester, New York; W. F. Peck, of Davenport, Iowa; N. Senn, of Milwaukee, Wisconsin; S. W. Gross, of Philadelphia, Pennsylvania; N. P. Dandridge, of Cincinnati, Ohio.

The Secretary, Dr. J. R. Weist, read the minutes of the preceding meeting, which were approved.

The business having been transacted, Dr. David Prince read a short paper, in which he described an original device for purifying the atmosphere, which he deemed of the greatest value in the operating amphitheatre. He referred to the almost universal presence of micro-organisms in the air, and described the various forms of schizomycetes, both innocent and pathogenetic, showing the prevalence of the latter more particularly in houses and hospitals. His device consisted in submitting the air, before it entered the room, to an artificial shower of water impregnated with carbolic acid,—the idea being based upon the well-known power of rain to purify the atmosphere. A diagram of such an operating-room was presented.

In the afternoon, at two o'clock, Dr. John B. Roberts, of Philadelphia, read a paper on

#### THE FIELD AND LIMITATION OF THE OPERATIVE SURGERY OF THE HUMAN BRAIN.

This comprehensive essay contained a number of illustrative clinical records, and concluded with some elaborate tables interpreting the locality of the lesions of the brain by symptoms in cases of head-injury, and neoplasms, in the light of recent theories of the

localization of motor and sensory cortical centres. He advanced the following views:

I. The complexus of symptoms called "compression of the brain" is not due so much to displacing pressure exerted on the brain-substance as it is to some form or degree of intracranial inflammation.

II. The conversion of a closed (simple) fracture of the cranium into an open (compound) fracture by incision of the scalp is, with the improved methods of treating wounds, attended with very little increased risk to life.

III. The removal of portions of the cranium by the trephine or other cutting instruments is, if properly done, attended with but little more risk to life than amputation of a finger through the metacarpal bone.

IV. In the majority of cranial fractures the inner table is more extensively shattered and splintered than the outer table.

V. Perforation of the cranium is to be adopted as an exploratory measure almost as often as it is demanded for therapeutic reasons.

VI. Drainage is more essential in wounds of the brain than in wounds of other structures.

VII. Many regions of the cerebral hemispheres of man may be incised and excised with comparative impunity.

VIII. Accidental or operative injuries to the cerebral membranes, meningeal arteries, or venous sinuses should be treated as are similar lesions of similar structures in other localities.

IX. The results of the study of cerebral localization are more necessary to the conscientious surgeon than to the neurologist.

The principles of treatment were, for the sake of exciting discussion, dogmatically formulated as follows:

The principles of the operative surgery of the brain are applied to the treatment of

#### A. Cranial Fractures.

##### (a) In closed (simple) fissured fractures.

1. No evident depression, no brain-symptoms. No operation.

2. No evident depression, with brain-symptoms. Incise scalp and trephine.

3. With evident depression, no brain-symptoms. Incise scalp and possibly trephine.\*

4. With evident depression, with brain-symptoms. Incise scalp and trephine.

##### (b) In closed (simple) comminuted fractures.

5. No evident depression, no brain-symptoms. Incise scalp and probably trephine.†

6. No evident depression, with brain-symptoms. Incise scalp and trephine.

7. With evident depression, no brain-symptoms. Incise scalp and trephine.

8. With evident depression, with brain-symptoms. Incise scalp and trephine.

\* In classes 3 and 11 I should be inclined to trephine if the depression was marked, or if the fissures were sufficiently multiple to approach the character of a comminuted fracture.

† In classes 5 and 13 I should trephine, unless the comminution was found to be inconsiderable.

##### (c) In open (compound) fissured fractures.

9. No evident depression, no brain-symptoms. No operation, but treat wound.

10. No evident depression, with brain-symptoms. Trephine.

11. With evident depression, no brain-symptoms. Possibly trephine.\*

12. With evident depression, with brain-symptoms. Trephine.

##### (d) In open (compound) comminuted fractures.

13. No evident depression, no brain-symptoms. Probably trephine.†

14. No evident depression, with brain-symptoms. Trephine.

15. With evident depression, no brain-symptoms. Trephine.

16. With evident depression, with brain-symptoms. Trephine.

##### (e) In punctured and gunshot wounds.

17. In all cases and under all circumstances. Trephine.

#### B. Intracranial Hemorrhage.

Trephine for the removal of clot and arrest of bleeding when the probable seat of hemorrhage is ascertainable, and the clot is believed to be a localized one.

#### C. Intracranial Suppuration.

Trephine and make, if necessary, exploratory punctures in all cases of abscess.

#### D. Epilepsy following Cranial Injury.

Remove portion of cranium in selected cases.

#### E. Insanity following Cranial Injury.

Remove portion of cranium in selected cases.

#### F. Cerebral Tumor.

If can localize it, and if it is probably superficial, remove bone; and excise growth if it is found.

The discussion was opened by Dr. Hunter McGuire, who said, although agreeing with much that he had heard, he was obliged to differ in points of practice. The indications when to operate given by the speaker are very extended, but upon reviewing his conclusions there appear to be only two conditions in which we are not to operate, and these are identical. This practice of trephining under all circumstances, if adopted, would carry surgery back about one hundred years. This he regarded as dangerous teaching to send out from this Association, especially for young men to follow. The fact is that no safe rules can possibly be laid down for the surgeon for this operation, because no two cases are exactly alike in their features, and the condition in the case under consideration will indicate the principles which must govern operative surgery in the case.

The statement is made that symptoms of compression are not due to compression of the brain, but to inflammation. How, then, he asked, would the lecturer account for the appearance of brain-disorder immediately



after the infliction of an injury to the cranium with depression of the fragments? It seems impossible that inflammation could be produced in so short a period.

The statement has also been made that "trephining the skull is of little more danger, considered as an operation, than the removal of a finger through the metacarpal bone." It was Cooper, he believed, who had said that "between the trephine of the surgeon and eternity for the patient there intervened only the thickness of a piece of paper."

As regards the importance of securing good drainage, he heartily agreed with the reader of the paper. In the case with splintering of the inner table, where the brain is likely to be injured by the spicula of bone, the necessity of trephining is evident. He showed a button of bone removed by the trephine presenting such spicula on the inner surface. This was from a case of punctured fracture of the skull with an insignificant external wound. Finding symptoms of brain-irritation, he removed this portion of bone and found the membrane beneath bulging and tense, and when he incised the membrane the cerebro-spinal fluid spurted out, showing the increased tension. The patient at once improved, but it is too soon to announce the final result.

The operation has been mentioned in the treatment of insanity. He had one case illustrating this. The man was a negro, whom he found in the Asylum of the Freedmen's Bureau at Richmond. He had been in the institution for a year, during which period he sat crouched in a corner, for the most part, and had not uttered a single word. Upon carefully examining his head after shaving the scalp, Dr. McGuire found the scar of an old injury to the skull, with slight depression. He trephined him and removed a button of bone, showing an exostosis upon its under surface which had been embedded in the convolutions. At the doctor's visit the next morning he said "good-morning" to the patient, who answered, "Good-morning,"—the first words he had uttered since coming into the institution. He then said, "Where is the army to-day?" and the doctor inquired, "Where was it yesterday?" He said, "At Manassas." The army had been at Manassas nine years before! The intervening time had been to him a blank. He afterwards gave an account of his injury. He could recall events up to the time that he was struck upon the head with a boat-hook by a companion. He could remember the blow upon his head, but nothing more. The interval was an entire blank. The operation restored him both consciousness and speech.

Dr. Gunn said that his views upon this operation are on record, and he need not repeat what he had said in the paper read three years ago, in which he had advocated a more frequent use of the trephine. He was still of the opinion that in cases of fracture with de-

pression, the fracture being a simple one, the rule should be to elevate the bone, as the rule had always been in compound fractures. The advances made in antiseptic surgery give us here a great advantage, and enable us to convert a simple into a compound fracture by incising the tissues over the bone, without increasing the danger to the patient. He was glad to see that these views had been approved by the President of the Society in a paper read two years later.

He agreed with the author of the paper that the operation of trephining is not one fraught with danger, that it is a simple operation, and, indeed, a comparatively large portion of the cranial wall can be removed without special danger when done by a competent surgeon, often with positive benefit.

With reference to the first proposition, that the symptoms of compression of the brain are not due to pressure, he agreed with the lecturer in the vast majority of cases. Mere compression of the brain is not a very important condition; the hemispheres can easily accommodate themselves to pressure. The danger is in the irritation which is set up, the inflammation, and the changes in nutrition which must follow. The irritation is not only from the spicules of bone thrust inward at the time of the accident, but from osteophytes which subsequently spring up in the course of repair, like the callus of broken bone elsewhere. He could not, however, go as far as the lecturer did in saying that there is no such thing as compression of the brain. With the exception of these, he agreed with the lecturer in every point. His views are in accord with good sound judgment.

Dr. Nancrede would also take exception to two of the propositions. In the first one named, if the reader of the paper would insert the word "secondary," so as to make it read that "all secondary symptoms of brain-compression after depressed fracture are due to inflammation," he would agree with him. The observations of Fischer upon the effects of injuries of peripheral nerves upon the brain in connection with epilepsy showed that a lesion of a nerve in the scalp might lead to reflex irritation of the brain beneath with spasm of its vessels and interference with function, and give rise to brain-symptoms without any direct injury to the brain.

He would agree, however, with the opinion as to the comparative innocuousness of trephining when done by proper hands. The comparison that had been instituted as to the gravity of the operation he could not altogether accept, because it failed to take into consideration the possibility of complications, such as erysipelas and septicæmia, which in head-injuries are always more serious than in operations upon the fingers.

As a rule, he would oppose trephining merely for exploration. In cases of brain-tumor, the statement that "it can be done



with comparative impunity" is indefinite. What is meant by "comparative" impunity? In fact, in such cases each is a law to itself: the conditions are never precisely similar. There are not enough cases on record to enable us to lay down rules upon the subject.

With regard to suspected hemorrhage, he offered the recommendation that where symptoms are present which render the existence of a lesion of one of the sinuses probable, the surgeon should act as if it were known to be wounded and operate.

In the case of Dr. Hopkins which had been referred to, in which a brakesman struck his head against the upright of a bridge and produced a simple fracture of the skull with coma, he had applied a trephine and found a laceration of the lateral wall of longitudinal sinus and meningeal hemorrhage. He had great trouble in applying the ligatures, as they slipped off immediately. He then applied a compress of lint sprinkled with iodoform, and placed a larger one upon the top of it, and confined it in place with a bandage. The patient recovered without further trouble.

With regard to cerebral localization, he said that we are now fairly well acquainted with the topography of the brain, and in case of injury affecting the cortical motor centres we can trephine intelligently, but he would advise caution with regard to trephining over the sensory centres, because the lesion is more likely to be deeply seated; and such obscure lesions are likely to be more widespread and less susceptible to surgical treatment. The lecturer recommends trephining over the visual centre for oculo-motor paralysis. How does he decide that the lesion may not be in the optic nerve or somewhere in the course of the fibres of the tract, or at the base of the brain, in the corpora quadrigemina? The cases of monoplegia should also be carefully studied, as they may be due to lesion of spinal cord or nerve-trunk; he mentioned a case of paralysis of the leg due to thrombosis of the posterior tibial vein. He did not believe that the displacing force of a depressed fracture was of any consequence in itself. There are three classes of brain-injury: (1) There is such concomitant injury of the brain that the patient will die no matter what is done, and operation will not influence the course of the lesion. These cases are constantly being placed in the statistics of trephining, but they do not belong there. The patient will die anyhow, and the operation is only done with the view of palliation. There is (2) a class of cases in which the injury to the brain is very slight, and the trephine is used to protect the membranes from irritation and secondary inflammation, which may be summed up under the head of encephalitis. In these, trephining removes the only source of danger and the patient gets well. (3) Between these extremes is another class, of uncertain character and doubtful issue. In reference to them

he would say that he believed that the additional danger from the trephine is very trifling.

The statistics of Amidon he thought were misleading; having himself gone over the literature very carefully, he had arrived at the conclusion that the mortality of the operation of the trephining is about ten per cent.

In a simple fracture, with no evidence of pressure and no brain-symptoms, where the surface is smooth he would not incise the scalp, but if the bone were much comminuted and the edges ragged he would trephine without waiting for brain-symptoms. In the former case he would watch for signs of irritation, and if they appeared he would operate. Puffiness of the scalp, or the puffy tumor of Pott, is more likely to indicate osteo-mylitis than internal suppuration. It is possible that they may be associated. Even in the absence of brain-abscess the presence of bony spicula makes the operation necessary. He would always operate in multiple ragged fracture with depression, whether compound or not; in a smooth depression he would trephine upon the first symptoms of mischief, without waiting for the actual appearance of intracranial inflammation. In cases of suppuration in the cerebral lobes he had noticed that the temperature was normal or sub-normal. He thought that this might be of some assistance in diagnosis. The previous speaker had referred to the recovery after a foreign body had penetrated the brain. He would say that such a recovery is a very bad recovery. As the rule, he would prefer to operate and remove the foreign body if possible, to prevent future trouble.

Dr. Peck agreed in the main with the views expressed by the essayist, but believed that the pressure of bone upon the brain and meninges is capable of causing symptoms directly, without inflammation, although secondary symptoms are inflammatory. At the same time he believed that the occurrence of brain-inflammation called for other treatment than merely therapeutical. He cited a case of a brakesman who received a depressed fracture of the temporo-parietal region on the right side. He suffered immediately with symptoms of compression, and remained comatose twenty-four hours. He was then trephined and about two inches square of comminuted bone was removed. He at once began to improve, and in four days had a convulsion, from the result of irritation of brain-tissue due to the original injury. Upon making a free incision into the brain and liberating nearly two ounces of pus, the man subsequently got well. A boy was shot in the temple, producing immediate symptoms of compression. When seen a short time afterwards he was found much depressed. Upon trephining the skull a round clot of blood came away from the surface, but no evidence was obtained of the track of the bullet. The

boy recovered, and is now well, with a bullet in his brain. In this case the patient probably would have died in a day or two without the operation, not from the bullet, but from the blood-clot causing septicæmia. In a third case, in a child, with depressed simple fracture in the median line, recovery took place without operation, no symptoms of compression appearing.

The object of treatment is to remove pressure and favor drainage. He advocated early operation upon the first symptoms of pressure or irritation.

Dr. Prewitt thought the propositions of Dr. Roberts so positive and sweeping that they should be thoroughly discussed. Symptoms of compression may be due to other agencies than inflammation of the brain. Effused blood may produce such symptoms. He thought it possible that he might have misunderstood the lecturer. However, he would state that the danger to the patient from injury to the head is not mainly due to the fact that the skull has been broken, but owing to injury of other structures. The fracture of the bone is not more serious than a fracture anywhere else, but it is commonly associated with injury to the brain or its membranes.

With regard to the risk of converting a simple into compound fracture when there are brain-symptoms present, he would say that there is some additional danger in making the scalp-wound. Even with the advantages of antiseptic surgery we cannot always prevent or control inflammation, yet the operation should be done to relieve the brain from the irritation. A comparison has been made as to the difference between simple and compound fractures of the leg, but he saw a decided difference between them. There is more danger of inflammatory consequences when occurring in the brain than when they occur in the leg. There is certainly more danger, also, of inflammation of the parts below with an open wound than with a closed one. With a smooth depression such as the lecturer had passed around he did not see any necessity for trephining, because the depression is small and the surface scarcely rougher than the natural inequalities of the bone. As in the case of the preceding speaker, such cases may recover without serious symptoms. He would keep such a case under observation, and elevate the bone at the first sign of compression, but previous to that he would not trephine.

Dr. Parkes also differed from the view that symptoms of compression are invariably due to inflammation.

Dr. Gross asked that Dr. Roberts have the privilege of defining his statement. What did he mean by brain-symptoms? The expression seems vague and indefinite.

Dr. Roberts said that by brain-symptoms occurring after fracture of the skull he meant a group of symptoms commonly classed under

the head of compression of the brain, such as coma, paralysis, hemiplegia, etc., which he believed are not in reality due to pressure by the bone upon the surface of the brain. He maintained that compression of the brain is a mechanical and anatomical impossibility; the brain cannot be squeezed by an ordinary depressed fracture of the skull. The symptoms of compression so called are symptoms of irritation,—the first stage of inflammation.

Dr. Parkes continued his remarks, stating that he believed that the early symptoms of compression are due to irritation caused by hemorrhage as well as by bone-pressure upon the brain. He did not think that the surgeon has a right to give additional risk to the life of the patient by making an open wound unless the symptoms call for operation. As regards the third proposition, there is no comparison between the two operations.

He agreed as to the importance of drainage, and mentioned a case where fracture of the vault of the skull led to trephining and introduction of a drainage-tube. On the fourth day there was a large flow of cerebrospinal fluid, which he had never seen in fracture of the vault before. He could only account for it on the supposition that there had been a laceration of the lobes of the brain so as to permit the escape of fluid from the ventricles.

Mr. Lucas, in St. Bartholomew's Hospital Reports, mentions three similar cases in which there was extensive injury of the cerebral tissue and without brain-symptoms. In another case, where a piece of the bone from the vertex had been scooped out as large as a coffee-bean, there was laceration of the superior longitudinal sinus. The edges of the wound in the sinus were brought together with thin interrupted catgut ligatures; the hemorrhage stopped at once, and the patient recovered.

Concerning the effects of brain-lesions upon sensation, he had one case that he would refer to. A man received a blow from the butt of a pistol upon the upper and outer portion of the parietal bone and the upper part of the occipital. There was a compound fracture and perforation. A large amount of brain-substance had escaped and was matted in the hair, and more was forced out of the wound by violent expiratory efforts and vomiting. By introducing his finger into the wound he felt a hard substance lying upon the tentorium cerebelli: it was the "sight" of the pistol, which had been broken off. In this case, although there should not have been any sensation at all, sensation was well preserved. This case also illustrates the importance of drainage. The tube was introduced, and the operator left the patient in charge of another physician. In the course of a week symptoms came on of brain-lesion, paralysis, high temperature, etc. He was again summoned to the case, and found that the drain-

age-tube had been displaced. He replaced the tube, kept it in position, and the patient recovered.

Dr. J. Collins Warren confirmed the remarks as to the importance of drainage. One of the difficulties is the swelling of the tissues and increased intracranial pressure, which causes the membranes to press against the ragged edges of the opening in the bone and thus increase the injury to the tissues. In considering this we are impressed with the great difficulties in the way of correct diagnosis. Head-symptoms may also be due to external lesions, as periostitis and cellulitis. He cited a case of a child with perforated fracture of the cranial vault. At first there was no evidence of brain-disorder, but there was some fever; at the end of a week the child was found to be perfectly deaf. The child died, and at the autopsy an accumulation of pus was found in the fourth ventricle, obviously beyond the reach of the trephine.

In another case of fracture of the skull there was absolutely no blood or effusion into the brain, although some blood was found in the peritoneal cavity. There are cases in which there are "brain-symptoms" without injury to brain-structure. He had had two such cases this winter. Both had injuries over the occipital bone; the first got well after showing symptoms of fracture of the base of the skull, the second is still going on. When seen a week ago, there was found a collection of pus in the tissues of the scalp outside of the brain, with great improvement in the mental state. We must take into consideration all the various causes which may give rise to the symptoms of so-called concussion of the brain, such as hemorrhage, septicæmia, and other conditions.

A case illustrating the localization of brain-lesion was treated in the Massachusetts General Hospital. The patient had a blow upon the head in the parietal region, with hemiplegia of the opposite side. He began with paralysis of the inferior extremity, next appeared a slight paralysis of the arm, and finally the same side of the face became paralyzed. Dr. Walton, who studied the case with him, arrived at the following explanation: there was a slight effusion commencing at the upper part and posterior to the fissure of Rolando, which gradually had worked downwards and upwards, successively involving the hand and face centres. What strengthened the diagnosis was the fact that the improvement took place in exactly the same order. The patient regained the use of his leg and arm, but still has some paralysis of the buccinator and other facial muscles.

Dr. Tiffany said that in the treatment of wounds most surgeons prefer keeping them closed if possible; and they do not convert simple into compound fractures needlessly. Besides the operation of trephining there is the

original injury for which the operation was demanded; which is not a normal condition. Certain monkeys have been cited which had their heads opened with impunity; but in man the operation is not undertaken in a state of health, but in one of disease, which materially alters the conditions.

There is no comparison between the relative importance of trephining and amputation of the finger.

The recommendation to use a very large trephine, or half of a large one, he thought unnecessary. Why not apply the ordinary trephine more than once?

With regard to the relative size of wounds of inner and external tables of skull, it depends upon the direction of the force: if a man shoots himself under the chin and the bullet escapes at the top of his head, the wound of exit will be larger in the outer table than in the inner table.

He thought that there should be a hard and fast line drawn between fractures of the skull in childhood and those in the adult. The prognosis is widely different. He had seen depressed fractures in children get well without operation, which he certainly would have trephined if they had been adults. He cited a case of a boy with a depressed fracture, so marked that a finger could be laid in the depression, in which he did not operate, and the boy recovered: the groove still remains in the skull, but it is gradually springing out into shape.

There is also a difference between the negro and the white race: there is not nearly so much reaction in the negro race after operation. There can be no doubt as to the different course which inflammation takes in the two races.

The lecturer speaks of simple fracture of the skull in cases where "there is no evident depression and no brain-symptoms;" he regarded this as an impossible diagnosis. Again, in comminuted fracture, with no evident depression and no brain-symptoms; this is an impossible accident. Finally, where there are brain-symptoms *without* evident depression, the lecturer advises operation. But where would he apply his trephine?

Dr. Gross said that in army records it is not uncommon to have a fissured fracture from gunshot injury, without evident depression, but with brain-symptoms. In such cases there may be extensive meningeal hemorrhage from laceration of the dura mater, the symptoms of compression coming on much more gradually than where a branch of the middle meningeal artery is ruptured.

He did not regard a compound fracture as favorable as one that is not compound: this is especially true of fractures of the skull, even with the aid of antiseptic precautions, which are applied with difficulty to head-injuries.

Having carefully gone over the subject of the operation of trephining, he was in a posi-



tion to say that the tables of Amidon are utterly unreliable, because the facts had been made to fit a theory. They will not bear careful examination.

He agrees with the lecturer with regard to the importance of drainage after brain-injury, although it is not always easy to carry it out. He referred to Dr. Weir's remarkable case,\* where a breech-pin of a gun was embedded in the brain, where recovery was secured by careful and thorough drainage. He thought that there was a great future for operative surgery in this direction.

He wished that some decisive rule could be laid down as to the proper line of practice to pursue in these cases of intracranial injuries, because a serious medico-legal question is involved. In case of gunshot wound of the cranium shall we open the vault and make a careful examination, remove fragments of bone and foreign substance, and insert a drainage-tube? If we do, and the man dies, the prosecuting attorney will be met with the defence that the doctors killed the man, and not the one who shot him. On the other hand, if we refrain from this course, the plea is made that the patient died for want of proper treatment. Under such circumstances murderers cannot be convicted; and, indeed, one has just escaped the full penalty in Pennsylvania because of this uncertainty. Such cases certainly should be treated, and the precise rules should be formulated. In this connection he called attention to the case of Dr. Fluhner, published in the *New York Medical Journal*, in which, a gunshot wound of the frontal region being found, and the track of the bullet detected by a soft probe, a counter-opening was made in the upper occipital region, and the ball found and removed. A drainage-tube was then carried through the brain from one opening to the other until the track closed and the patient recovered. A most instructive case, treated in accordance with strictly scientific principles.

Dr. Moore thought that this was a subject upon which the Society should give a very decided opinion. Gunshot wounds of the skull are common; frequently they are suicidal. A man shoots a ball into his brain: what is to be done? He was much interested in the cases cited by the last speaker, and reported a similar case which he had lost from want of proper drainage.

The drainage of wounds he regarded as indicating a great advance in surgery; the drainage of brain-wounds is certainly modern. He alluded to the difficulty of finding a missile by a counter-opening; the ball, after passing through the hemispheres of the cerebrum, may glance from the inner side of the skull and embed itself in the brain. In this case a counter-opening would not expose the bullet. He expressed a fear lest the use of drainage-

tubes or probes might lead to injury, and deprecated the use of any force in their introduction. He had not much faith in the value of statistics of trephining, and would be guided by the indications present in the individual case. He hoped that the surgeon would not be deterred from doing his duty by popular sentiment, and should not pay much attention to the silliness of juries or the follies of judges.

Further discussion of this paper was postponed until the following morning.

#### MISCELLANEOUS BUSINESS.

Dr. Tiffany reported that the auditing committee had examined the Treasurer's accounts and found them correct. Committee was discharged.

On motion of Dr. Mears, the Secretary was directed to communicate with the Surgeon-General of the Army, the Surgeon-General of the Navy, and the Supervising Surgeon of the Marine Hospital Service, and invite them to attend the session and participate in the discussions.

Dr. Billings announced that an excursion had been arranged for the Fellows to visit Johns Hopkins University and Hospital, Baltimore, on Wednesday afternoon. Upon motion, the invitation was accepted.

It was also announced that the annual dinner would be held at Wormley's Hotel on Thursday evening, April 22.

The committee appointed at the last meeting on Results of Operations for Resection of the Ankle-Joint, through Dr. P. S. Conner, its chairman, reported progress and was continued.

*Second Day's Session.*—Dr. Prince said that comparing present results of treatment of injuries of the brain with those under the old methods, he observed a great advance. He had not seen a case of hernia cerebri since the introduction of antiseptic methods into his practice. At the same time he did not regard trephining as a minor operation; for although the operation is simple enough, if septic poisoning occur the wound of the scalp is more dangerous than the wound of an extremity; in the case where the brain is involved, death is almost certain to follow.

With regard to trephining for insanity, the operation had not been sufficiently frequently performed to lay down rules for it. He had operated in one case. The advances in surgery of the brain are such that many lives are now saved which would under older treatment have been lost.

Dr. Brinton said that this is a comparatively new field for surgery, and it might be expected that some mistakes will be made at first. He disputed the first proposition, and declared that in cases with depressed fracture the symptoms in the great majority of the cases are not due to intracranial inflammation. The displacing effects of depressed

\* American Journal of the Medical Sciences.



fracture is the point to which we direct our treatment. In a recent case of fracture extending across the frontal bone, arching from one external angular process of one side to that of the other, the upper fragment overlapping the lower, the patient was perfectly comatose. Upon elevating the bone it sprang into place with an audible snap. In a very short time the coma disappeared, the patient became conscious, and was able to speak rationally before he (Dr. Brinton) had finished washing his hands.

With regard to the comparative gravity of the operation, when we reflect upon the effects of the admission of air into wounds and the disturbance following inflammation of the brain, we cannot regard trephining as an insignificant operation. Another danger has been already alluded to,—the opening of a sinus, and the difficulty of tying a sinus laterally. He recalled the case of a child kicked by a trooper's horse, making a comminuted fracture and laying open the lateral sinus. The wound in the sinus was freely exposed and ligatured, and the child recovered. He thought that the difficulty generally is experienced because the opening in the skull is too small, and advocated trephining in order to increase the field in which to operate. In cases of injury to the cranium without brain-involvement, it is very difficult to decide whether to trephine or not. If the patient is operated upon it may increase his risk, and if he recovers without operation he may afterwards develop insanity and epilepsy. His own rules had been those laid down by Prof. Gross in his *System of Surgery* when considering this topic, where the whole argument is well summed up. [In conclusion he read extracts from Gross's *Surgery* bearing upon this discussion.] To this little can be added and little can be taken away.

Dr. McGraw said that cases of depressed fracture of long standing without brain-symptoms are rare. He reported the case of a negro, a house-painter, who had a perfectly smooth, depressed fracture of the skull. At first he was stunned, but afterwards recovered consciousness and went about his work. The man after several months had dizzy spells, and came into the hospital for treatment. A year after the original accident, a disk of bone was taken from the centre of the depression and the bone was elevated. The dura mater bulged out of the opening, showing increased tension; but there was no irritation, the bone being perfectly smooth. The man recovered perfectly, and is now at work on scaffolds five stories high. He has no more dizziness and no more brain-symptoms.

He would take exception to Dr. Nancrede's statement that removal of the irritating portion of the bone does not avail after inflammation has occurred. In a case of felon of the finger we remove the bone and secure free drainage, and in brain-inflammation we

can relieve tension and remove the source of irritation, and give a better chance of recovery.

Dr. Conner was in accord with the general principles of the paper, but he regarded trephining as an operation not to be lightly entered upon. Where the patient is suffering from a depressed fracture, the inner table being broken and forced in upon the membranes, in such cases the chances for the patient are much better after trephining, because he is relieved of the immediate cause of irritation and source of subsequent danger. It has been well said that the conditions in children are very different from those in adults. He was impressed by the remarks upon gunshot wounds of the brain, and the recommendation to use large probes and drainage-tubes. Apart from the danger of injury to the brain, he recalled the fact that the teachings of modern writers are that the chief injury is not from the bullet-wound or from splinters of bone, but from the entrance of air containing germs. He would hesitate before recommending the introduction of probes and drainage-tubes except with the greatest care.

As regards the symptoms of compression, he stated that in eighteen out of twenty cases of simple depressed fracture no serious results follow. In most cases where brain-symptoms are present it is the result of the accumulation of blood and other material which gives trouble. He preferred not to open such a fracture at once, but to wait for some indications for treatment. Early trephining may save some that would otherwise be lost, but on the other hand it may cause some to die who would otherwise recover.

Dr. Dandridge reported a case of linear fracture, with paralysis of the muscles of the forearm of the right side, and frequently recurring spasms of the left side, including the face. The spasms recurred every few minutes. The man's mental condition was also affected. There had been incomplete unconsciousness for some time after the accident. When first seen, six days after the injury had been received, he could answer questions, but was somewhat confused. These symptoms pointed to a lesion of the brain upon one side. It was decided, after some hesitation, not to interfere. At the end of a few months the patient had completely recovered, except a slight numbness in his right little finger. All of his symptoms had disappeared at the end of a year. This case bears directly upon the subject of the paper. If he had seen the case immediately after the accident, with such symptoms, he would probably have trephined, but when seen some time afterwards it did not seem as if sufficient brain-injury existed to warrant an operation.

Scarcely sufficient consideration has been given in the discussion to the position of the fracture. If we wait for paralysis in cases of fracture of the frontal bone, we may wait so

long as to affect the chances of recovery. On the other hand, in fractures over the motor area paralysis occurs very soon. He wished to call attention to this point, the locality of the fracture as affecting the rules of treatment.

Dr. Watson narrated a case of a policeman who received a depressed fracture at the inferior anterior portion of the parietal bone. The patient, a man 36 to 40 years of age, was unconscious. There was found a fracture of the external table. He hesitated about operating, but decided against it. The patient suffered for about three weeks with brain-symptoms, including delirium, but finally recovered. At the end of six months he was able to go around, but there was still inability to articulate and some loss of hearing. When examined a year afterwards there was still some depression in the skull, but he was able to perform his duties as a policeman. In children the brain will accommodate itself to a considerable amount of depression, and this is also true in some cases in adults.

Dr. Briggs, at the request of several Fellows to give his views, called Dr. Hutchison to the chair, and said that he had already expressed his opinion upon the operation in his former paper. As regards the nature of the injury, there are two classes of cranial injury. There is a diffuse injury of the brain, as where a man falls from a house-top upon his head. In such cases a trephine cannot do any good. In a second class the injury only extends to the bone itself, or very slightly beyond. It is in these that trephining is called for, and only these, because by it we can remove broken pieces of bone and prevent injury to the brain.

With regard to the treatment of cases of simple depressed fracture without brain-symptoms, he thinks that trephining is for the most part entirely unnecessary. As to the question of the cause of the brain-symptoms in depressed fracture, he would not attribute them all to inflammation. The depressed bone causes certain molecular and circulatory changes in brain and membranes upon which it presses, and the effects of brain-compression and concussion run into each other and are not very distinct. In simple depressed fracture which is round and smooth, where the symptoms are those of concussion, trephining is useless. On the other hand, where blood is pouring out, the symptoms demand trephining in order to save the patient.

If the brain-symptoms come on a few hours after the accident, then we expect hemorrhage and trephine; or if we have reason to suspect the presence of pus we should remove it. The only call for the use of the trephine in simple fracture is the presence of spicules of bone pressing upon the membranes. In these cases we may or may not have at once symptoms of compression or concussion. In a few hours we have symp-

toms coming on of a different kind, due to irritation. We find the patient with his knees drawn up in bed, with spasms of the muscles of one arm or leg, or twitching of the muscles of his face, and in a semi-comatose condition. Now, when these symptoms are present, indicating irritation of the brain, it is the surgeon's duty to operate at the earliest possible moment, in order to prevent further injury and stop the beginnings of inflammation. Trephining, he thought, should be limited to the conditions he had cited. After inflammation has begun, the trephine cannot do any good, except to remove a source of irritation. The patients generally die.

With regard to transforming a closed wound of the cranium into an open wound, none of those who discussed the question appear to have taken into consideration the anatomical condition of the bone itself and its surroundings. In the cranium the bones are well nourished, and surrounded by firm structures abounding in blood-vessels; they have no medullary canal, and in many respects differ from the bones of the extremities; they also heal readily after fracture. It had always been his practice, whenever there are any symptoms which seem to demand it; he has had no hesitation in cutting down upon the bone and incising the bone itself. With regard to the danger of the operation, he did not think that the danger was in the operation itself; it is not a serious operation to remove a portion of the fractured bone from the skull, but these injuries are usually attended by serious lesions of the brain. The operator is also liable to further injure the brain in his attempts to elevate the bone; in skilful hands, however, it is a safe operation, though not, as said by Dr. Roberts, to be compared with amputation of the finger.

With regard to operation for exploratory purposes, he would not always agree with the lecturer. Now, if there are no symptoms present and no evidence of depression, no operation would be called for; but where such symptoms are present it is the duty of the surgeon to make such exploratory incision, and the operation would be less dangerous than to leave the patient to suffer from the effects of the inflammation.

With regard to hemorrhage, he had not had a case where he was so unfortunate as to open a sinus with the trephine; but if such a laceration should occur, a slight pressure with the finger followed by a graduated compress treated with some antiseptic substance would be sufficient to stop the bleeding. He did not think the application of a ligature to the lateral wall of a sinus at all necessary: a slight amount of pressure only is needed to close the vessel.

Dr. Roberts, in closing the discussion, said that his statements had been to a certain extent misunderstood; the propositions he had laid down were not final, and a careful exam-

ination of them would show that they were not absolute. He had worded them very carefully so as to make them general; they were rules to which exceptions are expected.

With regard to the comparison between the results of amputation of a finger through a metacarpal bone, and trephining, it is useless to say that no comparison can be made, because it has been made: he had taken Ashurst's table of mortality after finger-amputations and compared it with Amidon's table of trephining; and even allowing the possibility of error in the latter doubling the mortality,—allowing that Amidon had been twice too sanguine,—still his statement held good that the operation of trephining is little, if at all, more serious than the finger-amputation.

He insisted upon his statement that the brain can be pressed upon but not compressed by a fracture: from anatomical reasons, squeezing of the brain itself is impossible under ordinary circumstances. The brain can accommodate itself to pressure by discharging some of the cerebro-spinal fluid into the vertebral canal. He had been asked if the symptoms coming on immediately after depressed fracture were not due to compression. He answered, no; they are due to shock, injury of brain, or to that obscure condition known as concussion, which he did not believe in, but considered it due to multiple laceration of the brain. It was stated that the symptoms come on too quickly to be due to inflammation; but irritation can come on very quickly, and he considered irritation as the first stage of inflammation. If the brain were hard enough to be compressed by an ordinary depressed fracture, it would be hard enough to stop a hemorrhage and prevent extravasation of blood. Secondary symptoms are always due to inflammation. In the case quoted where the symptoms disappeared, and it was inferred that they had been caused by a blood-clot, he could not accept this explanation. With regard to closed and open wounds he would merely say that the closed are better, except where there is pressure for accumulation and retention of secretions, when an open wound is better than a closed one.

With regard to exploratory trephining, as the question had been asked, he would say that, in case an accident should occur and his own skull should be fractured, if there was any obscurity about the case he would thank any Fellow who would trephine him. Referring to gunshot wounds of the brain, he said that Fluhrer's case had been treated in a most skilful and scientific way and with the greatest care. The probe was not forced into the brain, but simply allowed to follow the course of the bullet; the trephine was applied in the occipital region, the ball removed, a drainage-tube carried through, and the patient recovered. The treatment should call for the greatest admiration.

With regard to absence of phenomena pro-

duced by injuries in the posterior region of the brain, in the case reported of injury in the occipital region, he said that the lesion was too far back. The sensory area is in the posterior parietal region, and not in the occipital. The case does not affect the position taken. Of course, in the diagnosis we must eliminate deep-seated injury, hysteria, and other neuroses. He had not recommended the use of the half-trephine because the large trephine was too big, but on account of the inequality of the skull in thickness. In localized lesion we need a large trephine, but for ordinary cases for elevating fracture it is difficult to get them small enough.

In cases of fracture of the skull in children and negroes, the conditions are acknowledged to be different from ordinary cases. Depression of the outer table of the skull may occur in the negro without fracture of the inner table. In cases of fracture of the base of the skull, the course generally recommended is to leave them alone. In a child with fracture of the skull, where pressure upon the parietal bone caused blood mixed with air to flow from the ear, he concluded it was a fracture extending into the petrous portion of the temporal bone; he trephined him, removing a number of small pieces of bone; the child recovered. Under the old treatment the case would have been left alone.

In conclusion, he would say that he had not stated that the trephining should be done in all cases except two; but, on the contrary, that under two circumstances trephining never should be done; in others it was possible that it might be done; in others it was the duty of the surgeon to trephine under certain circumstances; while in others it was always the duty of the surgeon to trephine.

In obscure cases he would obtain all the information possible to throw light upon the case, shave the scalp, examine the skull, and, if a doubt still existed, then the indication is to trephine. With regard to the statements of the late Prof. Gross which had been quoted, he would say that he was an advocate of greater freedom in resorting to this operation, and it was because he was a pupil of Prof. Gross that he had written the paper he had presented.

With regard to trephining for hemorrhage, referred to in the paper, he had been pleased to notice a recent article in a German medical journal, in which the value of the operation of trephining in cases of suspected hemorrhages was referred to in the highest terms.

#### NEPHRECTOMY: ITS INDICATIONS AND CONTRA-INDICATIONS.

Dr. S. W. Gross read an abstract giving the statistics of two hundred and eleven cases of extirpation of the kidney, of which one hundred, or forty-seven per cent., died. It will therefore be seen that this operation



is a very grave one. From an extensive acquaintance with the literature of this subject, he had come to the conclusion that it is too often resorted to. The object of the present paper was to compare results of the operations of nephrectomy, nephrotomy, and nephrolithotomy.

Taking up the statistics of nephrectomy, it was found that the lumbar operation is safer than the abdominal. The percentage of recovery by the lumbar operation is greater by eleven and one-half per cent. than by the other method. Referring to the operations of Knowsley Thornton, and his statement that the reason why the lumbar operation is safer is because a greater number of healthy kidneys have been removed by it than by the abdominal method, the speaker did not believe this to be true. He had found that where normal kidneys had been extirpated, as in cases of urinary fistule caused during the removal of tumors, the lumbar operation saved 23.34 per cent. more than the abdominal, and in diseased kidneys the results were better by 8.40 per cent. by the lumbar incision than through the anterior wall of the abdomen. He next proceeded to take up the indications for nephrectomy.

(1) *Sarcoma in adult subjects.*—Of these he reported fifteen cases, of which nine died as the direct result of the operation. Of the six survivors, one only was alive at the end of five years. Thus, of the cases reported by Martin, of Berlin, of a disease which is fatal without operation, forty per cent. survived, on the average, 30½ months.

(2) *For non-malignant morbid growths.*—In benign renal tumors nephrectomy is sometimes demanded, and may be successfully performed.

(3) *For tuberculosis of kidney in its early stage.*—Nephrectomy during the early period of tuberculosis of the kidney in twenty cases had given forty per cent. of recoveries. In eight cases which recovered, the average duration of life was twenty months. Previous nephrotomy in these cases was not advantageous; removal of the diseased organ is better at the beginning.

(4) *For rupture of the ureter.*—In such cases the only thing to be done is to form a urinary fistule or perform nephrectomy,—not nephrotomy. Then there is a class of cases in which nephrectomy should be performed only after the failure of other treatment. In hemorrhage following laceration of the kidney, the first thing to be done is to make an incision in the groin and establish drainage; and if this does not effect a cure we should resort to nephrectomy.

In those cases of incised wounds of the loin where the healthy kidney projects through the open wound, this is not an indication for its removal. Replace the kidney; it can be removed later if necessary.

In recent wounds of the kidney or ureter

during the operation of hysterectomy or hysterotomy, he held that the kidney should not be sacrificed primarily, on account of the additional shock to the patient. In such cases he contended that it is better to fix the ureter in the line of the abdominal incision, and postpone further operation until the patient has recovered from the first one.

In suppurative lesions of the kidney the organ should not be removed in the first instance. In 63 cases of nephrectomy for pyelonephritis, 32 recovered, 31 died. Out of 89 cases of nephrotomy for the same condition, 77 recovered and 22 died; therefore the recoveries are in favor of nephrotomy by nearly 25 per cent. There is one very interesting point in connection with this class of cases,—it is this: that primary nephrotomy greatly reduces the dangers of subsequent nephrectomy. From a review of all the cases of which the statistics are presented, it will be observed that by preliminary nephrotomy 46 per cent. of the cases will be saved.

In cases of hydronephrosis nephrectomy as compared with nephrotomy is less successful; there are 30.42 per cent. in favor of the latter operation. Therefore our line of treatment is the same as in suppurative conditions of the kidney. With reference to the statistics of hydronephrosis after nephrotomy, there were 38.46 per cent. of survivors; in about 10 per cent. urinary fistule persisted. As in the former class of cases, nephrectomy can be subsequently resorted to if nephrotomy fail.

(5) *Cases of stone in the kidney.*—Three cases have been reported of nephrectomy for stone in the kidney, and all recovered. He had arrived at the conclusion, however, that nephrotomy should first be resorted to. After nephrotomy the mortality has been 9.52 per cent. One point should be kept in mind: in cases of calculus in an otherwise healthy kidney the exploratory incision should be made in the loin, so that it can be utilized in case it is afterwards found necessary to resort to extirpation.

(6) There is another class in which there is painful bleeding from the kidney. In 22 cases of nephrectomy for this condition 13 were saved, 9—i.e., over 40 per cent.—died. The operation is an extremely lethal one in this class of cases. Nephrotomy was performed 17 times, with 16 recoveries and 1 death, or 5.58 per cent. perished. Nephrorrhaphy failed in nine of the cases. In two of the cases nephrectomy was afterwards resorted to.

*Contra-indications.*—Nephrectomy should not be resorted to in cases of *sarcomatous kidney in children*. In 13 operations 4 recovered, 9 died; and in all those who recovered the disease returned. The primary mortality is about 70 per cent., and the final result death in every one from a return of the disease, eighteen months being the longest survival.



Nephrectomy should never be performed for *cancer of the kidney*. In 12 operations 2 lived, 10 died, or 83.33 per cent. mortality; of the two cases which survived, one lived 44 days, the other 60 days, therefore the operation failed to prolong life in this condition.

Nephrectomy is also contra-indicated in the *advanced stage of tuberculous disease*, in which there is tuberculosis of other organs besides the kidney.

[By resolution, discussion was postponed until after the reading of Dr. Tiffany's paper.]

#### NEPHROLITHOTOMY.

Dr. L. McLane Tiffany, of Baltimore, reported a case of nephrolithotomy and made some comments upon the operation.

The patient was a man, in the pelvis of whose right kidney a physician had diagnosed trouble, and had brought the case to the reporter's observation. He obtained the following history. The patient was 26 years of age, married, and was the father of one child. He began at the age of 17 years to suffer with occasional paroxysms of pain in the right loin. About six years ago he noticed that the urine was very light in color and deposited a sediment, but he had no difficulty in passing water. On the 4th of July, 1884, he was suddenly seized with an attack of pain in the right side, extending from the back to the front, and running down the thigh, with pain and retraction of the testicle. Afterwards these pains recurred frequently, the paroxysms being more severe in the day than at night. He had taken various remedies without relief, and was taking much morphia, and could not live without it. Upon examination there was tenderness in the right loin, muscles of the right lumbar region were contracted. Moving the limb caused him pain. The percussion-note was duller than upon the opposite side. The urine contained pus and considerable sediment. Operation was performed February 21, 1885. Kidney was exposed by incision in the right lumbar region, then opened at the side by Paquelin's thermo-cautery, and a stone removed in fragments from the pelvis of the kidney, weighing in all 556 grains. It was composed principally of phosphate of lime. The hemorrhage was insignificant, and ceased with reaction. A drainage-tube was inserted and antiseptic dressings applied. Forty minutes after the operation the patient passed water from the bladder, and complained of its burning. Patient sat up in a week, and, in short, made an uninterrupted recovery. A small sinus still exists, which gives no discomfort. Two interesting facts were noted during the treatment. For the first few days, while the urine flowed through the wound the urine discharged from the bladder was clear, and did not contain any pus; afterwards pus reappeared. This showed that the other kidney was probably healthy,—an important point in case extirpa-

tion of the diseased organ should come up for consideration.

Nephrolithotomy is a good term introduced by Henry Morris, of London,\* to designate the operation of incision of the kidney for the removal of a calculus, the organ not being dilated by pus or urine; it does not apply to operations for the removal of stone from the centre of a suppurative cavity, the stone having escaped from the kidney, or where sinuses exist leading down to the stone. He believed that the time would come when the question of operation will be more generally considered, and thought it should be resorted to earlier than it has been, as in the recorded cases the patients have suffered a number of years before the operation was performed. As regards the subjects of stone in the kidney, it is slightly more frequent in males, and occurs more often in the left kidney than in the right, though the difference is not very great. An hereditary element is sometimes found.

As regards the symptoms, they appear early in life generally. Pain is almost always present; the paroxysms of pain being more frequent in proportion to the acuteness of the case. Exacerbations are sometimes due, however, to change in the position of the stone, or its becoming the cause of suppuration. The pain shoots down from the loin to the testicle, which is retracted, sometimes down the inside of the thigh. Exercise or exertion always causes pain, especially movements of the muscles of the back. Lumbar muscles sometimes strongly contracted, and also the outer fibres of the external oblique; but this disappears on etherization. The secretion of urine sometimes interrupted. Urine may contain blood and triple phosphates as well as pus and albumen. In other cases these may be absent. Sometimes the reaction changes abruptly from acid to alkaline. The blood in the urine is liable to appear in proportion to the amount of exercise, and also after paroxysms of pain.

*Directions for operation.*—The incision for the exploration of the kidney is to be utilized for the removal of the stone if found. It is to be made in the lumbar region, through the fibres of the quadratus lumborum muscle and the outer edge of the erector spinæ. The finger is then introduced, after exposing the kidney, to search for stone. Failing to recognize a stone by the touch, a needle may be introduced; but this he would think unnecessary, because opening the kidney is warranted by the symptoms. Paquelin's cautery is used to incise the kidney; the bleeding is usually very slight, and can be checked with hot water. The finger is the best probe for examining the pelvis of the kidney. The calculi, which are easily detected and often small, usually consist of lime oxalate and lime phosphate.

\* Clinical Society's Trans., vol. xiv.

The operation will finally take its place among the most successful of major operations.

Will the kidney return to its normal condition? It is too soon to answer this question. We might expect it to do so after removal of a foreign body; the patient was quite satisfied with the final result. Two points seemed of special interest in this case: First, the fact that the bladder could be irrigated through the ureter is very interesting. When a nephrotomy has been done and the question of the removal of the kidney is contemplated, the corresponding ureter may be plugged, so as to obtain the secretion of the other kidney in order to determine its condition. The operation has been compared with lithotomy of the urinary bladder, in which the rule is to operate as soon as the stone is found. He thought the question of age was one of great importance in both cases.

A certain number of cases have been diagnosed by competent surgeons as stone in the kidney in which no stone could be found subsequently. He referred to two cases reported as cases of nephrolithotomy, one reported by Le Dentu (*Bulletin de Thérapeutique*, 1881, p. 343) and one by Lloyd (*London Lancet*, June 2, 1883, p. 948), which he considered did not come properly under the head of nephrolithotomy.

The symptoms of kidney stone may be so closely simulated as to deceive any one, but, while the diagnosis is in doubt, the question of operation is not. To the comparison of the kidney stone and that of the bladder he would add the note that in cases of chronic inflammation both organs may demand incision and rest. To bring about a cure of chronic inflammation is still further applying the common rule to different parts of the urinary apparatus, and so simplifying surgery.

Dr. Gross said Dr. Tiffany is to be congratulated upon the successful termination of his case, the more particularly because he has removed from an otherwise healthy kidney the largest calculus that has yet been recorded, the only one approaching it being the concretion, weighing nearly one ounce, excised by Mr. Bennett May.

As Dr. Tiffany has stated, the operation is a comparatively safe one. Thus, of 21 cases that he (Dr. Gross) had collated, 2, or 9.52 per cent., died,—the patient of Cullingsworth from the blocking of the opposite ureter by a stone, and that of Mr. Pepper, as he wrote to him personally, from the effects of morphia. In Mr. Thornton's three cases the operation was by the combined lumbar and ventral incision.

In the cases of Butlin, Anderson, and Cullingsworth, the stone was removed through an incision in the pelvis of the kidney. He quite agreed with the author of the paper in regarding the diagnosis of such calculus as being far from easy. Intermittent attacks of renal colic, with tenderness on pressure, the

presence of blood, and it may be of a little pus, in the urine, with frequency of micturition, are in the absence of vesical and prostatic lesions the best diagnostic signs, but they may be present in cases of highly acid urine, and in the early stage of tuberculous kidney. The group of symptoms just mentioned being present, the surgeon is certainly warranted, after the failure of ordinary remedies to relieve them, in cutting down upon the kidney through the loin, with the view to its exploration with the fingers or with the needle, and, if needed, by an incision of the kidney-substance itself, through which the finger can be carried into the calices and pelvis of the organ. And this brought him to the third conclusion, that "incision down to and exploration of the kidney is eminently proper," in which he entirely agreed with Dr. Tiffany. Thus, of twenty-two exploratory operations which he had collected all recovered, and the pelvis of the organ was incised in three. Should incision in every case of failure of the ordinary methods of exploration to detect a stone be the practice of the future, the risks will doubtless be added to; but he believed that Mr. Morris is right in recommending its adoption. It should certainly be resorted to before the kidney is sacrificed by extirpation.

Dr. Gouley referred to a case reported in the Transactions of the New York State Medical Society, vol. i., which he presented to the Association. He thought it was of advantage to break a large stone into fragments before attempting its removal, and he recommended the operation of litholacasty with nephrolithotomy. The composition of the stone was interesting. In a case presented last year of so-called prostatic concretion, the statement was made that it must be prostatic because it was phosphatic. He then had made the point that a phosphatic concretion could form on any mucous surface. He believed that incision through the lateral surface of the kidney was better than one in the median line or in the pelvis of the kidney, and believed that statistics would bear him out in this assertion.

Dr. McGraw said that he had very little experience on the subject, because they have very few calculous disorders in Michigan. He thought this might illustrate a point in pathology. The vesical stones we have are almost always the result of obstruction, and follow stricture of the urethra, enlarged prostate, etc. We have cases of abscess of the kidney, and have noticed that where the ureters are pervious no calculi are formed—he spoke of Michigan. But where the ureters become thickened and coated with phosphatic deposit, calculi are formed. In a case of pyæmia occurring last winter he found after death that there were abscesses in the kidney, with secondary changes in the ureters, and a stone was found in the kidney, which he re-

garded as a secondary and not as a primary development.

Dr. Conner referred to the difficulty of diagnosis, and felt encouraged to perform exploratory nephrotomy in cases of doubt.

Dr. Prewitt asked whether it would not be better to make the incision through the pelvis of the kidney rather than through its structure.

Dr. Tiffany, in reply to Dr. Gouley, said that the case he had referred to was one of calculous pyelitis. It was not a case of simple removal of a stone from the pelvis of the kidney. As to the incision into the kidney, he had made it through the structure in preference, as he thought the chances of closure without a permanent fistule were better when made through the gland-structure. He would not disturb the kidney in order to operate in the median line, but preferred to cut into the portion of the kidney which presented itself at the wound.

Dr. Gouley could not understand why Dr. Gross and Dr. Tiffany wished to exclude the case in the Transactions of the New York Society on account of pyelitis, although a stone had been removed by operation. He maintained that a stone could not exist without causing inflammation.

Dr. Gross said that the operation of nephrolithotomy is applied to the removal of a renal calculus from a kidney not distended by pus or urine. He did not think the case referred to by Dr. Gouley was of this kind. With regard to the location of the incision, in 18 cases in which the renal substance itself had been incised, three cases of abundant hemorrhage occurred, which, however, was checked by plugging the wound with sponge, so that the risk of hemorrhage is not very great. The only additional danger in incising the pelvis of the kidney is that of renal fistule. In the three cases of Butlin, Anderson, and Cullingsworth, the pelvis was incised; in the other fifteen, the incision was in the parenchyma. Therefore, we say, operate upon the most convenient portion. In conclusion, he thought that operation for stone in the bladder was in no way comparable to nephrolithotomy.

(Proceedings continued in the next number.)

#### MISCELLANEOUS BUSINESS.

At the executive session, held April 23, the following officers were elected:

*President.*—Moses Gunn, Chicago.

*Vice - Presidents.*—Christopher Johnston, Baltimore; Thomas P. Russell, Oshkosh, Wisconsin.

*Secretary.*—J. R. Weist, Richmond, Indiana.

*Treasurer.*—J. G. Brinton, Philadelphia.

*Recorder.*—J. Ewing Mears, Philadelphia.

*Members of Council.*—Hunter McGuire, Phineas S. Conner, John S. Billings, Louis McLane Tiffany.

*Committee of Arrangements.*—Drs. J. S. Billings, J. Ford Thomson, and L. McL. Tiffany.

Next place of meeting, Washington, D.C.,

on the Wednesday next preceding the meeting of the American Medical Association.

The following Honorary Foreign Associates were elected: Sir James Paget, Mr. John Eric Erichsen, Sir Joseph Lister, Thomas Annandale, Edinburgh; Prof. Friedrich Esmarch, Kiel; Prof. Von Langenbeck, Berlin; Prof. Volkmann, Halle; Prof. Czerny, Heidelberg; Prof. Billroth, Vienna; Prof. Von Nussbaum, Munich; Prof. Verneuil, Paris; Prof. Ollier, Lyons.

The following new Fellows were elected: W. H. Carnalt, J. Ford Thompson, Washington; J. Edwin Michel, Baltimore; Roswell Park, Buffalo; Theodore R. Varick, Jersey City.

The following rule was adopted:

At the next meeting of the Association no Fellow shall occupy more than one hour in reading his paper.

The recommendation of the President with regard to a number of Honorary Fellows was approved, and they were elected.

It was not deemed expedient to extend the limit of membership above one hundred.

Dr. Weist announced an amendment to be acted upon at the next meeting changing the limit of number of Fellows from one hundred to one hundred and fifty, so that the membership may be increased to one hundred and fifty.

A committee was appointed to prepare a memoir of Professor Gross for the Transactions.

The Publication Committee presented a communication in explanation of the delay in issuing the last volume of the Transactions.

Dr. Mears moved that all papers shall be promptly handed to the Recorder; and that the reports of the discussion sent out to the members shall be returned without delay, on penalty of being omitted from the Transactions.

Dr. Gross amended the resolution by making thirty days the limit of time for the return of original draughts or proofs sent to the Fellows.

The motion was adopted as amended.

By unanimous consent, it was decided to place the vignette of the late President in the official seal of the Association.

On motion of Dr. Gunn, the Committee on Publication was instructed to issue a volume of Transactions, provided the amount of material on hand is sufficient to make a volume of the size of the present volume.

General votes of thanks were tendered to the officers and the chairman of the Committee on Arrangements for the admirable arrangements for the success of the meeting.

The President elect was inducted to the chair, and made a brief address of thanks.

THE TRUSTEES OF JEFFERSON MEDICAL COLLEGE have elected J. W. Holland, M.D., of Louisville, Kentucky, to the chair of Medical Chemistry, to succeed Prof. Mallet, resigned.



## OBSTETRICAL SOCIETY OF PHILADELPHIA.

STATED MEETING, THURSDAY, MARCH 5, 1885.

(Continued from page 516.)

The President, B. F. BAER, M.D., in the chair.

THE PRESIDENT presented a'  
GANGRENOUS FIBROID TUMOR OF THE UTERUS.

Mrs. J., a patient of Dr. Ira D. Canfield, of Renovo, Pennsylvania, 52 years of age, married, had borne one child eighteen years ago; she had not been pregnant since. Her abdomen had been rather prominent for years, and about five years ago she discovered that it was becoming quite firm and hard over the lower protuberant portion. About the same time her menses began to appear more frequently than usual and to continue longer, until during the last year she flooded continuously three weeks out of every four. She thought she sometimes lost a quart of blood in twenty-four hours. There was great tenderness over the abdomen, so that the weight of the clothing was intolerable, a constant feeling of painful distention, and sometimes a sensation of bursting. These symptoms increased in severity, and in the latter part of January, 1885, labor-like pains supervened. Paroxysms of uterine tenesmus occurred several times a day, resulting finally in a discharge of serous fluid and gas, which must have been considerable in quantity, for the next morning there was marked subsidence of the previously distended abdomen.

However, the large, dense, round, and evidently uterine tumor still remained, tolerating, now, comparatively rough manipulation, the tenderness having almost entirely disappeared. The quasi labor-pains increased in frequency and strength, and shreddy, putrid masses were occasionally expelled from the vagina. The patient began to show evidences of acute septicæmia. Dr. R. Armstrong, of Lock Haven, was now called in consultation, when it was determined that nature was endeavoring to cast off a decomposing uterine fibroid and an effort was made to assist. Symptoms of blood-poisoning became alarming.

On February 15 he was suddenly summoned, and with the patient anesthetized, they found the following condition: Abdomen distended and tympanitic; a globular and symmetrical mass outlined within the lower portion of the abdomen, extending two inches above the umbilicus, about the size and consistence of the pregnant uterus at the seventh month of gestation. Hanging from the vaginal orifice was an elongated mass of toneless, decomposing tissue, resembling a mass of amniotic membrane which had been allowed to remain in the parturient canal for several days after labor. It had a purplish, ashy color, and was as thick as his forearm. The

odor emitted was sickening. Passing his hand beside this mass, which could not be easily separated, he found the os uteri so dilated that the vaginal and cervical canals were almost of the same calibre and the rim of the os could scarcely be defined. Advancing the hand within the cavity of the uterus, it passed among an immense quantity of semi-friable, soft, and shreddy tissue, and he further discovered several large tumors of firm consistence embedded in and apparently one with the uterine wall. Indeed, it was difficult to define the uterine wall, so irregular and thick was it at some points and so thin at others. The tissues at the attenuated portions—the uterine wall proper—appeared so weak that he feared that the manipulations necessary to enucleate the tumor would make rupture of the uterus imminent. But their immediate removal was imperative, and fortunately their attachments were softened by the process of degeneration which had caused the grave symptoms. He therefore introduced Thomas's spoon-saw, and with that and his fingers separated and removed section after section until there was nothing left of the uterus but the merest shell. The aggregated quantity removed, a portion of which was presented this evening, almost half filled a wooden bucket. The uterus did not contract well after the operation, and very free hemorrhage occurred, but it was controlled and the uterus made to contract by large and repeated injections of pure vinegar.

The after-treatment was carefully and judiciously conducted by Dr. Canfield, and consisted of injections into the uterine cavity of vinegar twice daily until all fetid discharges had ceased. The improvement in the temperature and pulse of the patient was remarkable, and within a few days she expressed herself as feeling better than she had felt for years. She is now sitting up, apparently restored to health.

Dr. HARRIS inquired the cause of the gangrenous change in the structure. Was it confined to the new tissue?

Dr. GOODELL thought that the process of auto-enucleation was the cause of the degeneration of the tumor. The latter is a low grade of formation, and the contractions of the uterus and the constriction caused by the cervix uteri around the already extruded portion interfered with the circulation in the tumor and caused its death. In one case he removed a tumor in which this process had just commenced. The removal of the tumor was followed by a gush of nearly half a pint of broken-down blood, which was very offensive in odor. A sharp attack of erysipelas followed.

Dr. BAER could give no other reason than that advanced by Dr. Goodell. The tumor was of slow growth. No ergot was given, but labor-like pains supervened and may have cut off the circulation. The degeneration was apparently confined to the new growth.



## REVIEWS AND BOOK NOTICES.

THE MEDICAL DIRECTORY OF PHILADELPHIA, PENNSYLVANIA, DELAWARE, AND THE SOUTHERN HALF OF NEW JERSEY, 1885. Philadelphia, P. Blakiston, Son & Co. 8vo, flexible morocco cover. Pp. 397. Price, \$2.00; after May 1, \$2.50.

This handsome volume presents, in acceptable form, an alphabetical and street directory of physicians practising in Philadelphia, with the date and place of graduation; also the addresses of those of the State, as well as of Delaware and of the adjoining portion of New Jersey. Much useful information is also furnished regarding national and local medical societies, hospitals, and institutions of various kinds, which is often needed for reference. Lists of dentists, veterinarians, druggists, instrument-makers, electricians, and opticians are also supplied.

Never before has the profession of this locality been so well served in the way of a directory, and it is to be hoped that the enterprise of the publishers will be appreciated and sustained. Very few corrections are noted in looking over its pages, and the only change we would suggest in the arrangement would be to place the directory in the front of the book and to put all the other accessory matter in an appendix.

## GLEANINGS FROM EXCHANGES.

ENLARGED PROSTATE AND RETENTION OF URINE.—In a paper on "Tenotomy of the Levator Prostatæ," Dr. Hal C. Wyman makes a pertinent suggestion in the treatment of enlargement of the prostate gland, which so frequently requires catheterization, with the risk of catheter fever and death. He concludes:

1. The tendon of the levator ani muscle unites with the central tendon of the perineum, and invests the prostate gland in such a manner that when the prostate is enlarged force is brought to bear upon it during efforts to evacuate the bladder, which rotates the prostate upon the urethra and shuts off the flow of urine.

2. A section of the perineum and its deep fascia and central tendon will remove the force expended by the levator ani muscle in producing version of the prostate, and permit the muscles of the abdomen and bladder to evacuate the urine. Such a section implies tenotomy of what some anatomists call the *levator prostatæ* muscle.

3. An operation of this character involves a breaking up of the veins and lymph-spaces on the rectal and lateral aspect of the prostate, and, if the wound is made to granulate from the bottom, atrophy of the prostate will follow, so that by the time the tendon levator

prostatæ has reunited no further difficulty in micturition will be likely to ensue.

LAPAROTOMY FOR TRAUMATIC ANEURISM OF THE ABDOMINAL AORTA.—Prof. Loreta, of Bologna, operated, on December 18, upon a sailor, who was suffering from an abdominal aneurism caused by a blow. An incision was made from the ensiform cartilage to the umbilicus, the aneurism exposed, and its cavity filled up with two metres of silver-plated copper wire. Twenty days later no trace of pulsation remained in the sac. On March 9 the patient had quite recovered, and was able to resume his duties.—*British Medical Journal*, March 28, 1885.

RINGWORM TREATED BY CHRYSAROBIN IN LIQUOR GUTTA-PERCHÆ.—In a note upon the treatment of an epidemic of ringworm of the scalp in a public institution, Dr. W. T. Alexander recommends epilation and the use of a ten-per-cent. solution of chrysarobin in liquor gutta-perchæ, which forms a pellicle upon the surface, preventing the further extension of the disease. This treatment was very successful.—*Journal of Cutaneous and Venereal Diseases*, February, 1885.

THE ANNUAL CONVERSAZIONE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA, held on the 16th ult., was largely attended, over five hundred guests having accepted the invitation, including a number of distinguished physicians from other cities. In the library Drs. S. Weir Mitchell and E. T. Reichert showed specimens of snake-poison and its effects, while Drs. Shakespeare, Formad, and J. Gibbons Hunt exhibited apparatus for culture of bacteria and various microscopic slides of interest. In the lecture-hall Dr. Formad and Mr. Holman exhibited the lantern microscope. A supper concluded the evening's exercises.

## OFFICIAL LIST

OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U.S. ARMY FROM APRIL 12, 1885, TO APRIL 25, 1885.

MCPARLIN, T. A., LIEUTENANT-COLONEL AND ASSISTANT MEDICAL PURVEYOR U.S. ARMY.—Sick-leave extended three months, on surgeon's certificate of disability. S. O. 88, A. G. O., April 17, 1885.

LIEUTENANT-COLONEL JOS. R. SMITH, SURGEON; MAJOR JNO. S. BILLINGS, SURGEON; MAJOR HENRY McCLDERRY, SURGEON.—Detailed to represent Medical Department of the Army at annual meeting of American Medical Association to be held at New Orleans, Louisiana, April 28, 1885. S. O. 91, A. G. O., April 21, 1885.

BROWN, HARVEY E., MAJOR AND SURGEON.—Leave of absence extended two months. S. O. 83, A. G. O., April 11, 1885.

CAPTAIN L. W. CRAMPTON, ASSISTANT-SURGEON.—Assigned to duty as post-surgeon, Fort Bridger, Wyoming Territory.

FIRST-LIEUTENANT WM. C. BORDEN, ASSISTANT-SURGEON.—Ordered for duty at Fort Douglas, Utah Territory. S. O. 33, Department of the Platte, April 22, 1885.

ROBERTSON, R. L., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Granted leave of absence for one month. S. O. 43, Department of Texas, April 16, 1885.